HISTORICAL ECOLOGIES, HETERARCHIES AND TRANSTEMPORAL LANDSCAPES

Edited by Celeste Ray and
Manuel Fernández-Götz

ROUTLEDGE

Historical Ecologies, Heterarchies and Transtemporal Landscapes

Interlacing varied approaches within Historical Ecology, this volume offers new routes to researching and understanding human–environmental interactions and the heterarchical power relations that shape both socioecological change and resilience over time. Historical Ecology draws from archaeology, archival research, ethnography, the humanities and the biophysical sciences to merge the history of the Earth's biophysical system with the history of humanity.

Considering landscape as the spatial manifestation of the relations between humans and their environments through time, the authors in this volume examine the multi-directional power dynamics that have shaped settlement, agrarian, monumental and ritual landscapes through the long-term field projects they have pursued around the globe.

Examining both biocultural stability and change through the *longue durée* in different regions, these essays highlight intersectionality and counterpoised power flows to demonstrate that alongside and in spite of hierarchical ideologies, the daily life of power is heterarchical. Knowledge of transtemporal human–environmental relationships is necessary for strategizing socioecological resilience. Historical Ecology shows how the past can be useful to the future.

Celeste Ray is Professor of Environmental Arts and Humanities and Anthropology at the University of the South in Sewanee, Tennessee. She is the author of *The Origins of Ireland's Holy Wells* and *Highland Heritage: Scottish Americans in the American South*, and is the editor of volumes considering Scottish identities or Southern Culture, including *Transatlantic Scots*, *Southern Heritage on Display* and *Ethnicity* (Volume Six of the *Encyclopedia of Southern Culture*).

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This volume is dedicated to Carole L. Crumley.

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Foreword

William Balée

This book concerns the development of a fundamentally new approach to human societies, the power relationships inside and between them, and the cumulative effects all these have had on both contemporary and archaeological landscapes. In assessing the long-term, complex interactions between empirically known human societies and their associated terrains—and in some cases waterscapes—the authors in this impressive work show sensitivity to scale in the multidimensionality of time and place. This question of scale and its fluctuations speaks directly to the underlying framework of Historical Ecology, as an aggregation of formulaic concepts and terms that define it as a distinctive branch of knowledge, one that offers an alternative to conceiving of human history and its appertaining environments as a simple forward march through time. It is far more interesting, nuanced and complex even than that if you adopt the point of view contributors espouse in this volume.

A conceptual scaffolding of Historical Ecology would consist of several straightforward premises about how people and environments are engaged over the *longue durée*. In a very important recent article that summarizes in many ways her own thinking over the past 30 years—that is, since the release of her groundbreaking edited volume on Burgundy, France (Crumley and Marquardt, 1987)—Crumley sees that scaffolding of Historical Ecology as a "framework for studying the management history of landscapes" (Crumley, 2017:565). I think this statement supplies a precise pathway to comprehend the enterprise as a whole, for it assigns environmental agency—and the ability to modify the environment—to humans, rather than mere adaptability or adaptation to the environment, long the hallmark of an earlier generation of cultural evolutionism, with intrinsic stages of progress. In South America—the Amazon in particular—the failure to consider human manipulation of the landscape both in the present and past, in diverse spatial contexts, was represented in what ethnographer Eduardo Viveiros de Castro (1996) called the standard model of Amazonian ethnology. Archaeologist Peter Stahl (2002) employed the term standard model to denote a brand of cultural evolutionism inherent in Amazon archaeology during much of the twentieth century. Crumley was making the same critique of received wisdom from stadial theory of European transitions, as from “Celtic” to Roman, because in her view the historical circumstances did not support easy categorization into relatively nonempirical, received notions of evolutionary progress (Murray and Arnold, this volume; Sastre and Currás, this volume). Because of that, in part, I believe historical ecologists are on a new road to knowledge now; Historical Ecology is shifting the focus of landscape to much more delicate engagements of people and environment through time, only comprehensible if we are careful to see both the *longue durée* and the short cycles of history in a single viewing frame—it is possible to do that. It is like looking with both eyes through a viewfinder compass, with one eye zeroing in on a specific feature in the viewing field and the other noting the degrees of cardinal direction it represents at the bottom of the plane, so that with the optical illusion created, one can assess the sightline over the target landmark or object; one takes in the environment at hand and can register its directional metric at once. This is, like Historical Ecology, a way of orienting oneself both in time and in the environment.

Crumley’s early contributions to Historical Ecology constitute one of the principal reasons the standard model—in ethnology as well as archaeology—has lost ground, in a more global frame of reference. The standard model is notable for its ahistoricism and its stadial view of human history. Several authors in this volume openly criticize that earlier view, and acknowledge Crumley’s notion of heterarchy, in their, as Janet E. Levy puts it, “critique of overly simplistic models of the evolution of prehistoric social systems.” Indeed, with Crumley’s heterarchy concept it is possible to more rigorously retrodict the fact that human history tends to be neither so stadial nor forward-going and that, for example, in the transition from Iron Age to Medieval Europe, one can observe “frequent reversals of governance style” (Thurston, this volume). Those reversals happen in contexts of competing relationships of power and politics with definitive impacts on landscapes—well documented in the alternating scenarios of transition from Late Iron Age to Roman Imperialism in Burgundy, France (Crumley and Marquardt, 1987; Murray et al., this volume) and also elsewhere in Europe (Fernández-Götz and Liceras-Garrido and Lock and Ralston, this volume) as well as Inner Mongolia and Mesoamerica (Johannssen and Feinman and Nicholas, this volume). In addition, human history is punctuated not only by progress, but also by alternating regressions of landscape use intensity, as in the Yazoo Basin of the Mississippi River valley that occurred in the early colonial period with “reduced landscape management by Native American groups” (Rodning and Mehta, this volume)—these are the equivalent of human-ecological doldrums, not foreseen in the cultural evolutionism and cultural ecology of an earlier generation. We see it in the interstices of empire in Inner Mongolia (Johannesson), when building the superstructural landscape of funerary monuments stops between collapses; and sacred landscapes themselves are an interesting indicator of human management and changing power flows as seen also in sacred waterscapes (Ray, this volume). All this is intellectual progress in fact and indicates Crumley's influence on sharpening the focus of the archaeological lens to grapple better with the actual events of prehistory—on small and regional scales (Marquardt, this volume).

For the most part, Historical Ecology is a very rapidly growing middle-range body of theory aiming to assess human–environmental relationships without a singular agency or deterministic principle other than societal or cultural factors. Indeed, the approach is nonlinear and involves the study of complex systems (Crumley, 2017:S66). Another important aspect of Historical Ecology's interdisciplinary reach is that it brings traditional knowledge and scientific knowledge together in a single frame of reference. We are indebted to Crumley for helping shape Historical Ecology into a necessarily interdisciplinary body of knowledge (e.g., Crumley, 1998). Essays in this volume make a compelling case for developing the concept further and helping Historical Ecology be a transdisciplinary force that erodes traditional academic boundaries between what we call disciplines. I am in favor of that. In fact, transdisciplinary convergence on specific environmental problems, including those associated with conservation and resilience (Ekblom et al., this volume; Murray et al, this volume), can provide applied historical-ecological corridors to a more satisfactory future.

This book is a major advance, and I am privileged to offer this short prelude to what will be a page-turner for anyone interested in Historical Ecology. Historical Ecology took off with Curmley's use and interpretation of interdisciplinary methodologies in her foundational research in Burgundy, France, and the definition of landscape used in that work (Crumley and Marquardt, 1987). This book before you, some 30 years out from that landmark undertaking, deserves to take its place as a monument to continuing developments in Historical Ecology, sometimes nurtured and always at least in part inspired by, Crumley.

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Historical Ecologies, heterarchies and transtemporal landscapes

Introductory perspectives

Celeste Ray

This volume assesses current ideologies and applications of Historical Ecology and considers how the examination of heterarchical power relations can help us understand both social change and resilience across time periods. A quarter of a century after Historical Ecology's multidimensional orientation has come to characterize many archaeological and cultural studies considering the dialectic of human-environmental relations, the volume's essays collectively address the ways in which Historical Ecologies have challenged established models in archaeological thinking and what new understandings promise for future research. Considering landscape as the spatial manifestation of the relations between humans and their environments through time, our team of authors analyze the power dynamics which have shaped settlement, agrarian, monumental and ritual landscapes through the long-term field projects they have pursued around the globe.

All authors share a common inspiration: the ideas and work of Carole L. Crumley. This volume pays tribute to her transtemporal and transdisciplinary "ways of thinking." Crumley pioneered Historical Ecology, heterarchical analysis in the social sciences and regional and multiscalar research in archaeology. Offering early applications of Annales School concepts to archaeological studies, she has stressed the long term in considering the prehistory and history of sites and in thinking about landscapes and regions. Her work advances diachronic knowledge of human-environmental relationships as a crucial tool for strategizing solutions to current environmental concerns. Her archaeological and ethnographic research has focused on landscape history across Europe, but has particularly concentrated on France (1974; Crumley and Marquardt, 1987; Plieninger et al., 2015). She has advocated dialectical and community-based approaches to formulate regional mitigation plans for environmental issues in the Anthropocene. Author or editor of ten books and nearly 100 articles, Crumley chaired twenty-eight PhD committees while a professor of anthropology at the University of North Carolina at Chapel Hill. She has officiated for numerous international boards and panels and was Secretary of the American Anthropological Association. She is now Executive Director of *Integrated History and Future of People on Earth* (IHOPE), a global network of transdisciplinary researchers using integrative frameworks to study human and Earth system history to provide insights for humanity's future resilience (Constanza et al., 2012; Hibbard et al., 2010). With an international project office hosted by Uppsala University in Sweden, IHOPE unites Earth system science with the social sciences, the humanities and communities of practice including local/indigenous people, NGOs and governments (http://ihopenet.org/).

The first of the volume's four units examines scalar and longitudinal approaches in Historical Ecology and applications of the concept of heterarchy. Historical Ecology draws from archaeology, archival research, ethnography, the humanities and the biophysical sciences to merge the history of the Earth's biophysical system with the history of humanity. Grounded in the conviction that the past matters to the future, Crumley's conception of Historical Ecology emphasizes multiple spatial and temporal scales and place-based practice (Crumley, 1979, 1987a, 1994, 2007, 2018). Examining sustainability over long periods of time, research in Historical Ecology offers pragmatic applications in managing land and water use, can identify successful old management strategies that could be rehabilitated today and corrects climate models for regional applications (Balée, 2006; Crumley et al., 2017; Hicks et al., 2016; Higgs et al., 2014; Håkansson and Widgren, 2014; McGovern, 2006). Examining both biocultural stability and change, these case studies in Historical Ecology offer models for understanding what Crumley has called "the complex chains of mutual causation in human-environmental relations" (1994).

William Marquardt opens the discourse by advocating a dialectic of scale. Through case studies in France and Florida, he positions dialectical thinking and applications as central to historical-ecological research. Understanding the development of sociohistorical structures and human behavior requires consideration of multiple spatial-temporal scales if our studies of the past are to be useful in our own era. Historical Ecology has provided practical frameworks for carrying out long-term, place-based research projects and Thomas McGovern, George Hambrecht and Megan Hicks consider the unexpected benefits of longitudinal research in Iceland which engages both broad teams of researchers and descendant communities.

As Crumley's works have argued, all societies are complex and have elements of both hierarchy and heterarchy. In the 1995 volume *Heterarchy and the Analysis of Complex Societies*, Crumley defined heterarchy as "the relation of elements to one another when they are unranked or when they possess the potential for being ranked in a number of different ways" (1995:3, 1979:144). The concept of heterarchy has been gaining momentum in works considering a wide range of periods and subjects from Neolithic Europe to the Maya to Bronze Age Thailand (e.g. O'Reilly, 2003). These publications challenge traditional interpretations of hierarchy-as-order-models by examining archaeological evidence for more varied, multi-directional power flows and for the regular renegotiation of the loci of power in prehistory.

More than two decades of regional and local studies in Historical Ecology have revealed that patterned order in prehistoric sociohistorical structures (socioeconomic class systems, politics, laws and law enforcement) often functioned through counterpoised, rather than ranked, power (Crumley, 1987b, 1995, 2003, 2005). Heterarchy explains aberrations in what we take for granted as predictable and the myriad exceptions that punctuate grand narrative paradigms. Understanding intersectionality (the interconnections between social categorizations and interlocking systems of power that marginalize particular categories) allows us to better document heterarchical flows of power that were and are present in every society. Janet Levy explains how heterarchy illuminates the study of gender roles and values in past human social groups and how a focus on gender strengthens analyses of social system complexity. T.L. Thurston concludes this unit by examining heterarchical assemblies and collective action theory for resolutions to century-old debates about the origins of participatory governance in protohistoric Europe.

Studies in the book's second section identify resilience. In ecological studies, resilience is an ecosystem's capacity to withstand change and regenerate. Employed in archaeology, the concept of resilience indicates the capacity of culturally produced landscapes, societies or even societal practices to remain viable through change (O'Brien et al., 2009; Redman, 2005; Fisher, Hill and Feinman, 2009). Integrating multi-scalar Historical Ecology and an appreciation of complexity as mediated by heterarchy, case studies consider how past societies responded to changing environments and socio-political structures. Knowledge of long-term human-environmental relationships is necessary to plan for socioecological resiliency in the future (Crumley, 2015, 2012; van der Leeuw et al., 2011). Essays in this section closely examine long-term continuities and changes in shaping landscapes and place-making and multiscalar resource utilization. Reconstructing Historical Ecologies of eastern and southern Africa, Anneli Ekblom, Paul Lane and Paul Sinclair compare urbanism on the Zimbabwe plateau with long-term settlement aggregation and resource use in the Lower Limpopo Valley to consider sustainable futures and conservation. Next, Seth Murray, Elizabeth Anne Jones and Scott Madry describe the three-decades-old "Burgundy project" begun by Carole Crumley, which has engaged a wider range of researchers in transdisciplinary analysis of socioeconomic and environmental changes in Burgundian landscapes. The authors examine the resilience of long-term agrarian land use in the region. Christopher Rodning and Jayur Mehta investigate resilience through settlement patterns and mound-building in the waterscapes of the Yazoo Basin of Mississippi and the Mississippi River Delta of southeastern Louisiana. They argue that the persistent monumental places created with earthen mounds reflected heterarchical aspects of, and promoted resilience within, Native American communities.

The book's third unit considers Crumley's initial and ongoing research interest in settlement, and societal and territorial dynamics in the European

Iron Age. Gary Lock and Ian Ralston rethink the mid-twentieth-century focus on settlement studies. Detailing their "Atlas of Hillforts in Britain and Ireland" project, the authors examine data for over 4000 hillfort sites to query regionality. David González-Álvarez reconsiders Cantabrian upland landscapes as central rather than marginal in the reproduction of northern Iberian Late Prehistoric societies. Inés Sastre and Brais Currás consider political and territorial characteristics of Northwestern Iberian societies at the end of the Iron Age and the beginning of Roman dominion. In that period, small-scale fortified, agrarian settlements were partly replaced by larger settlements that seem to have developed without centralized power structures. Employing a medieval analogy, Manuel Fernández-Götz and Raquel Liceras-Garrido also consider multi-layered socio-political aggregations and the complexity of the interrelationships between new towns and rural areas; connections the authors view as largely mediated by real or fictive kinship ties.

Historical Ecology identifies the continual and political reinterpretations of history and heritage. Concerned not only with materiality, but also with spiritual connections to landscapes and sites, research in Historical Ecology can rejuvenate or strengthen a sense of place and of community that developed around biocultural heritage (Berkes, 2012; Crumley, 2001). The final unit of the volume applies approaches and concepts from Historical Ecology to ritual landscapes, place-making and monumentality. These essays investigate heterarchical renegotiation of sacred and monumental sites over the long term in response to changing power networks and social structures. Examining the palimpsest of Mongolian mortuary landscapes, Erik Johannesson opens this section by charting the reuse of funerary monuments by successive nomadic empires to subvert or appropriate fixed symbols of power for mobile communities. Employing multiscalar and multitemporal approaches, Matthew Murray and Bettina Arnold also investigate mortuary landscapes and place-making through their project "Landscape of Ancestors" begun in 1997. Their focus is regional mortuary practice of the early Iron Age in southern Germany. Gary Feinman and Linda Nicholas consider the ritual significance of alignments and the layout of Lambityeco in the Valley of Oaxaca. They argue that changes in ritual practice there conformed to a transition in governance. Likewise, examining Irish expressions of the pan-human paradigm of sacred water sources, Celeste Ray considers how holy well dedications and associated folk liturgies were regularly renegotiated through time for social fit or in resistance to changes in secular and religious powers. As transdisciplinary work now links traditional ecological knowledge with solutions for environmental crises, this chapter calls for an archaeology of sacred water to understand water's religious significance and what motivates people to steward water sources in ways that enable socio-ecological resilience.

This wide array of studies, considering Historical Ecologies and heterarchies, in different periods and in different regions of the world, collectively reflects Crumley's intellectual influence. The authors demonstrate the utility of regional, multi-scalar and transtemporal lenses, the perspectives gleaned by considering the *longue durée* and also through long-term projects, the value of appreciating heterarchical power dynamics and dialectical thinking, the significance of place-making and of landscape maintenance for community identity and the effectiveness of engaging a wide range of stakeholders. Over the last five decades, these themes and approaches have been hallmarks of Crumley's work. Her on-going research continues to provide tools for making the past useful to the future.

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Part I

Ideologies and applications of Historical Ecology and Heterarchy

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1 Dialectic in Historical Ecology

William H. Marquardt

Historical Ecology is the multispatial, multitemporal study of the dynamic relations between people and their environment. Environment is largely independent of human control but invariably subject to human interpretation and reinterpretation based on spiritual beliefs, vested economic interests and power relations. Thus, historical study of human-environment relations cannot be productively separated from the study of social, economic and political relations.

Dialectical method has always been an essential part of historical-ecological investigation, at least in the way Carole Crumley and I conceived it during our work in Burgundy, France in the 1970s and 1980s (Marquardt and Crumley, 1987a) and in the way our team has applied it in Southwest Florida (Marquardt, 1992, 2014; Marquardt and Walker, 2013). In this paper I outline what I mean by dialectical method, show how such an approach can enrich our understandings of human behavior and contrast dialectical method with certain strands of social-theoretic thought that have been influential among anthropological archaeologists.

Historical Ecology in perspective

When Crumley and I first started working together in the mid-1970s, American archaeology was dominated by a hypothetico-deductive method and a commitment to testing hypotheses about human behavior—anthropological archaeology as science. Crumley and I wanted to understand cultural change, but for us the dominant paradigm of cultural evolutionism—change over the long term—seemed unsuited to the task of comprehending the *dynamics* within specific regions of space and periods of time.

The stated goal of most Americanist archaeology of the 1970s and 1980s was the understanding of "process": how and why certain aspects of a social formation influenced one another to bring about ever-new cultural configurations. I was drawn at first to systems models, which allowed one to specify interconnections and provided a mechanism—positive feedback or deviation amplification—that allowed for significant systemic change without a determinate external cause. Furthermore, one could include climatic factors such as long-term droughts or sea-level fluctuations and model their interaction with cultural phenomena such as subsistence strategies, settlement-pattern shifts, task scheduling or storage techniques.[1]

In 1975, Crumley and I went to France to investigate the processes that had taken place as the Iron Age Celts became Roman Gaulish citizens ca. 100 BC–AD 400. Some American historical archaeologists had drawn on acculturation theory to provide plausible explanations of changes in material culture during contact situations, so we initially entertained adopting that strategy. We chose southern Burgundy as a study area and began work, but the more we became familiar with the region, the more it seemed impossible to circumscribe.

We came to realize that understanding the changing relations between the Celtic Gauls and the Romans required more than learning the material culture and identifying land and resource usage. It also necessitated identifying connections with other regions, from the high Morvan Mountains down the Rhône–Saône corridor to the greater Mediterranean. It had to do with recognizing transport routes at regional and local scales. It required contemplating interactions between the Celtic polities and between those polities and their clients as well as the apparatus of the predatory Roman state. And, importantly, it demanded consideration not only of natural resources (rivers, land, sources of ores), but also of physical environmental fluctuations that had set the stage upon which the sociopolitical changes had played out. After all, European paleoclimatologists had not named this era the "Roman Warm Period" for nothing, and it became clear to us that Roman expansion into Western Europe had flourished in no small part because land-use practices that would not have succeeded in previous centuries were effective owing to ameliorated climatic conditions (Tainter and Crumley, 2007).

Crumley chose "Historical Ecology" as the title for Chapter 6 of our summary volume *Regional Dynamics: Burgundian Landscapes in Historical Perspective* (Crumley and Marquardt, 1987). The term had been used as early as the 1960s, by Ed Deevey, a paleoecologist at the Florida Museum of Natural History. Whereas Deevey's studies focused on reconstructing past climate regimes by interpreting data drawn principally from geological coring, Crumley drew more broadly on archaeological, historical, climatological, demographic, paleoenvironmental and geological evidence, as well as changes in land-use practices, migration patterns and the recorded social, economic and political motivations for human decisions about how to relate to and respond to these conditions. The result was a period-by-period, multiscalar history of people–environment interactions, a history that yielded implications for current and future practices based on past successes and failures (Crumley, 1987a).

This broader Historical Ecology concept took on more coherence at a School of American Research advanced seminar held in Santa Fe in 1990, which resulted in a volume of tangible case studies (Crumley, 1994).

Subsequent treatments by various scholars, including Crumley herself, as well as a monograph series published by Left Coast Press and another by Columbia University Press, have served to establish Historical Ecology firmly in the literature. (See for example Balée, 1998; Balée and Erickson, 2006; Crumley, 2001; Crumley et al., 2018; Erickson, 2010; Ford and Nigh, 2015; Håkansson and Widgren, 2014; Hornborg and Crumley, 2007; McIntosh, et al., 2000; Meyer and Crumley, 2011; Oyuela-Caycedo and Bonzani, 2005; Rostain, 2013; Schaan, 2012; Thompson and Waggoner, 2013; Vaccaro and Beltran, 2010). Today, an international network of researchers known as IHOPE (Integrated History and Future of People on Earth) is headquartered in Sweden. A commitment to Historical Ecology guides IHOPE's interdisciplinary projects (Costanza et al., 2007, 2012; Costanza et al., 2007; IHOPE, 2017; van der Leeuw et al., 2011).

Dialectical method

In 1990, I wrote that Historical Ecology is "that aspect of dialectical analysis and practice that deals specifically with human-environment interactions" (Marquardt, 1994:204). In Crumley's and my application of Historical Ecology in Burgundy and my own in Southwest Florida, a dialectical approach is prominent.

"Dialectic" has a venerable history (Bhaskar, 2008:15–37), but the term is employed in many different ways. As employed here, dialectic is a critical method of inquiry and exposition that takes the apparent world to be false and seeks by means of critical analysis to delve beneath surface appearances to expose contradictions, inconsistencies and relations between entities. Such understandings reveal ways to act consciously on sociohistorical relations to foster change. In this chapter I am particularly concerned with using dialectical concepts to visualize, analyze and comprehend human behavior in multiple spatial-temporal contexts, then applying those insights to guide future decisions and endeavors. I will argue that historical ecologists are especially well positioned to apply such multi-spatial, multi-temporal knowledge to effect humanizing transformations in the contemporary world and that this is most effectively accomplished as a collective endeavor.

Understanding the dynamics of past human behavior requires comprehension of human agency within a context of power relations and structural conditioning. *Agency* is the active involvement of individuals with the physical and social world (Gardner, 2008:95). I take it as axiomatic that people experience their surroundings in terms of inculcated cognitive categories and that they make decisions based on their interests. Their interests depend on how they perceive their situations and choices and how they view potential benefits and penalties. Agency takes place within fluctuating sociohistorical contexts, in which new actions can come into conflict with outcomes of previous actions and decisions. S*tructures* condition and constrain agents' choices, but do not determine them.

Two kinds of structure—physical and sociohistorical—provide opportunities and challenges. *Physical structures* include climate, geology, topography and natural resources. Physical structures have tangible existence and are non-human, but mountains, springs, non-human animals, plants, celestial bodies, even winds can have meaning and be interacted with as if they have volition and spirit (Marquardt and Crumley, 1987a:13–16). Stochastic events, such as volcanic eruptions or severe storms, also provide opportunities and challenges. These are not produced by humans, strictly speaking, but they nevertheless have effects and are perforce cognized according to the ontology (beliefs about the nature of being and what really exists) of the native population. So too are the various products created by people, and the landscape manipulations they undertake. Although human-produced, these products can become meaningful physical structures on their own and must be reckoned with as new elements in the living world.

Sociohistorical structures include the social, economic, legal and political institutions and relations that characterize a particular social formation. Sociohistorical structures lack tangible existence, but are nevertheless influential in conditioning human possibilities (Marquardt and Crumley, 1987a:7–8). Sociohistorical structures include the relations that people have with things that they themselves produce, such as monuments, buildings, earthworks, roads, canals, irrigation systems and the like. Not only do these require collective effort to create, but their maintenance requires coordinated labor and labor presumes social relations, whether based on taxation, corvée labor or kin reciprocity.[2] As humans manipulate their surroundings, they populate them with their own tangible objects. These material products can offer affordances, in Gibson's (1979) terms and yet, having become part of the lived environment, can limit as well as enhance human options.

Both kinds of structures—physical and sociohistorical—are situated in temporal context, that is, in relation to past and future forms. The meanings of structures are mutable. The degree to which a structure limits or enhances an agent's ability to act at a given moment is a matter of interpretation. Faced with a decision, individuals must evaluate whether any of several structures are relevant to that specific choice (Marquardt, 1985:67–71). Whether or not a particular structure must be factored into a decision, and the scale at which it may be applicable, will not be a free choice for people who lack the power to act on their own.

Power is the ability to act to achieve desired goals, with or without the consent of other individuals. *Authority* is the capacity to influence decisions or actions due to recognized knowledge, prestige or legitimate position. Most individuals have power and authority at one scale or another (Crumley and Marquardt, 1987:610–611). Resistance to domination takes many forms and is itself a form of power.

Human agents do not act at large, but instead make decisions and act at specific scales (Crumley, 2007). This is because individuals comprehend patterns, recognize homogeneity, plan for the future and contemplate potential advantages and penalties at specific scales. By scale I mean a specific amount of space or time, relative to the amount potentially under consideration. As we operate in the world, we interpret our surroundings in terms of *effective scales* (a term first used by Crumley [1979:166]). For each characterization of a situation or a decision about what action to take, there is a corresponding effective scale (Crumley, 2007:17; Crumley and Marquardt, 1987; Marquardt, 1985:69–70; Marquardt and Crumley, 1987a:2–4).

Because power relations exist simultaneously at multiple scales, analysis of the past must also be multiscalar. A pattern may be recognized and described at one scale, but a more comprehensive picture can be recognized if the analyst moves beyond that scale to a smaller or larger one, at which the patterns and connectivity will be different. That is, the understanding that one grasps at a particular effective scale must be preserved but transcended. One proceeds in this way until one has exhausted all available sources of information. In this way, we can transcend any single scale to reach a broader understanding of the dynamics of past social formations. In sum, by means of the critical procedure of *suspension, preservation and transcendence,* multiscalar analysis proceeds through controlled comparison. This forms the *critical-analytical* aspect of dialectical method.

It is not a revelation to anthropologists that people who live in non-Western social formations have ontologies distinct from our own. Ontologies are not prescriptive rules for day-to-day life, but instead are unquestioned general beliefs about the world and how it operates. People comprehend the world in mystifications sanctioned and reinforced by their own societies and communicate to one another in terms of these background categories. We all obtain initial models of reality as children, but as we mature, we call into question structural rules that we once thought were universal. It occurs to people (more readily to some than to others) that advantage can accrue to oneself and one's kinfolk, allies or loved ones if one can be involved in *producing models of reality* rather than blindly consuming them. Those who successfully do so emerge as influential leaders.

In other words, the meaning of structures can be manipulated to benefit certain groups or individuals. Conflicts arise when vested interests dispose people to interpret reality in ways that benefit them. Because other people have different vested interests and interpretations, human agency occurs within dynamic sociohistorical contexts, in which actions can be countered by others, have unintended consequences and come into conflict with previous results of human agency. The goal of dialectical critique is to discover the multiscalar relations that actualize this process, so that we can articulate a model of how the social formation operates and discover how to move beyond it (Marquardt, 1992:109–110).

How can we know whether we have achieved a valid understanding? Verification comes through *practice*, as one attempts to apply dialectically produced knowledge toward specific goals. Practice can include not just the purposeful reconstruction of socioeconomic relations, but also scholarly discourse that aims to convince. Thus, practice serves as a test of the maturity and authenticity of a model. To the extent that a dialectically produced model is incorrect or incomplete, its application will result in unintended consequences. It may fail due to being applied at a scale that is too broad or too narrow, or because power structures and vested interests were not sufficiently comprehended. Inadequacies thus revealed point the way toward needed changes in one's model. On the other hand, to the extent that the model is valid, its application creates a new situation. In the moment of its success, practice cancels the model's validity because effective practice changes the world; thus, the old model no longer applies. Hence, dialectical practice is *totalizing and always unfinished* (Marquardt, 1992:110–113).

The axiom that reality is cognized by people means that both physical and sociohistorical structures are received as mental models, as mystifications. The lived experience is one of human agents acting within multiple scales of meaning, motivated by their vested interests, sometimes constrained and sometimes abetted by relations of power and authority (Barrett, 2001:155–161). Meanings of various structures are themselves mutable and can be changed or interpreted differently by different people.

Case studies in France and Florida: a brief summary

In the French project, our landscape concept was a dynamic, open-ended one, wherein contrasting realities could exist simultaneously at different effective scales (Crumley, 2007:16–19; Marquardt and Crumley, 1987a). We were led to this orientation because after several years of interdisciplinary work—archaeological, geological, ecological, historical, linguistic and ethnographic—it became clear to us that authority, legitimacy and control through time could best be understood from multiple scales and that processes of decision-making had much to do with environmental conditions (e.g., subsurface geology, rivers, topography, climate), sociohistorical structures (e.g., patronage-clientage, Druidism) and historical contingency (e.g., the first-century defeat of the Aedui at the hands of a coalition of their ancient enemies, which left them ripe for an alliance with Rome; Crumley and Marquardt, 1987).

In Southwest Florida, our team focused on the heartland of the historically documented Calusa Indian people. They were conventionally thought to have achieved extraordinary complexity based on an abundant and reliable diet of fish and shellfish. Having first come to a basic understanding of the archaeological sites and their spatial and temporal distributions and subsequently having studied the plant and animal remains, sediments and paleoclimate at selected locations (Marquardt, 1992; Marquardt and Walker, 2013), we now believe that the Calusa people became heterarchically complex by ca. AD 700 during an uncertain climatic episode by participating in regional-scale exchange systems with interior and coastal peoples. Only later, ca. AD 1000–1200, did they become hierarchically complex, partially in response to ameliorated climatic conditions but also due to inter-polity competition with the neighboring Tocobaga and to broader-scale trade relations with Mississippian chiefdoms of the greater southeastern US (Marquardt, 2019; Marquardt and Walker, 2012). Finally, they rapidly transformed into a weak, tribute-based state in response to the new European presence in the early sixteenth century (Marquardt, 2014:13–17). In short, the non-agricultural Calusa did not become extraordinarily complex because a reliable food base financed sedentary population growth that eventually required complex governance, but rather through multiscalar reactions to challenges and opportunities afforded by a dynamic physical and sociohistorical environment.

These two regional case studies (Crumley and Marquardt, 1987; Marquardt, 2014; Marquardt and Walker, 2013) can be consulted to see how dialectical method was employed in historical-ecological work in eastern France and southwest Florida. In an earlier publication, I compared Burgundy and Southwest Florida to illustrate the multiscalar dialectical approach. In that paper I compared several scales of interaction—inter-polity, intra-polity and individual; Roman, Celtic, Spanish and Calusa—to elucidate the dynamics of cultural emergence against a background of changing climate and politics. I also showed how structures of patronage-clientage were key to precipitous changes among both the first century BC Celts and the sixteenth century AD Calusa and how factionalism played a role in resistance to authority among both the Celtic and Calusa elites (Crumley, 1987b:416–420; Marquardt, 1987a, 1987b, 1992:113–126).

Dialectic vs. other approaches

Assumptions

At a fundamental level, I adopt a realist perspective. There is a real world independent of human cognition and elements of that world act on humans irrespective of their desires and perceptions. Although the intransitive, uncognized environment—"Nature"—generates effects that are independent of the human mind, the latter produces mental models to explain and attempt to predict those effects. These transitive models are influenced by already existing collective knowledge, values, experiences and vested economic interests. Although springs, mountains, non-human animals and weather events are real—that is, they exist or occur irrespective of human perceptions of them—humans nevertheless project their beliefs and historically derived values on to those entities and interact with them accordingly. It is this capacity for reflexive intentionality that distinguishes humans from other animals and sets the agenda for such social sciences as anthropology.

As with any social analytic endeavor, the anthropologist must find an entry point into the labile flux of human-environment relations in order to make observations about agency, structure and relations. Although we may believe ontologically that change is constant—that process is immanent—our starting point involves a bracketing of a socio-environmental totality (Wurst, 2010:333–334). That bracketed system is only the beginning of dialectical analysis, for the bracketed elements and their relationships must be critically analyzed to reveal internal inconsistencies and contradictory elements and to discover the ways that its elements are related to one another and to other entities at longer and shorter temporal scales and at broader and narrower spatial scales (Marquardt, 1992:106–108). In other words, we bracket emergent human-environment relations only long enough to reveal the reasons why they cannot be bracketed. We retain the critical understandings gained in the first scale of analysis, but move on to another scale of space-time in which the elements and relations will be different. When critical analysis has been completed at all available scales, a model can be articulated and that model tested in real-world application (see discussion of *practice* above).

As stated above, dialectic has been used in a number of different ways. For example, practitioners of "agency theory" or "practice theory" employ a dialectic of agency and structure. For them, human agents perpetuate or alter social structures even as they participate in them; agency and structure define and are defined by one another. Marx uses dialectic in three senses: first, in the synchronic sense that contradictory phenomena can together constitute a single entity (e.g., the interests of capitalists and workers are inherently opposed but without both, capitalism would not exist); second, in the historical sense that contradictions can become actualized as conflicts, the resolution of which produces a new sociohistorical reality; and third, in the sense that dialectic is a method of analysis and exposition (Bhaskar, 1989:115).

The dialectical method I advocate for Historical Ecology is a dialectic of *scale*. My claim is that to understand a social formation fully, one must see sociohistorical relations not just at a single spatial-temporal scale, but also at multiple ones. This is because relations that are vital to both the conservation of social structures and the emergence of new ones are created by agents who operate not at one scale, but at multiple ones.[3]

Structuration

If a dialectical approach focuses on agency and structure and the meanings of structures are mutable and can be interpreted differently by different people, isn't this the same as structuration? My answer is no. In Anthony Giddens' structuration, agents modify social structures even as they perpetuate them. Structure is the simultaneous medium and product of agency (1979:65–85; see also Thompson, 1989 for critique). This conflationist orientation is problematic for the archaeologist or historian, because if structure and agency are mutually constitutive, how can we examine their interaction or assess how one or the other contributes to change or stasis within particular time intervals or within particular spaces? In a dialectical approach, agents and structures are analytically separable and temporally distinguishable.

Sociohistorical structures cannot exist without people, but they are not reducible to people because structures pre-exist people. At the same time, people are not puppets of structures because people possess emergent properties that cause them either to reproduce sociohistorical structures or to transform them (Archer, 1995:71). Because we are born into a social context, we can only reproduce, alter or abolish sociohistorical structures, we cannot create them (Marquardt, 1992:109; see Archer, 1995:65–75, 248–254; Bhaskar, 1979:11–22, 1989:76; Bhaskar and Callinicos, 2003:96–101). The conflationist commitment of structuration limits the ability of the historical ecologist to discover what Archer calls the "historicity of emergence" (1995:66).

The work of Giddens (1979) and Bourdieu (1977) inspired "practice theory" (Ortner, 1984:144–157) in cultural anthropology and a focus on "agency" in archaeology (Dobres and Robb, 2000; Gardner, 2007). The authors of these works share a belief that social life emerges as a simultaneous product of a recursive relation between agency and structure (Dobres and Robb, 2000:10; Roscoe, 1993:113). This approach is intended to avoid the extremes of methodological individualism (the notion that social phenomena emerge from the motivations and actions of individual agents) on the one hand and structural determination on the other. I argue above that social life emerges through the *dynamic interaction* of human agency and structures both physical and sociohistorical and is best studied by employing a dialectic of scale. In my opinion, structuration is not as appropriate a strategy because (1) its focus on the mutual constitution of agency and structure avoids temporality and (2) the conditioning influences of physical structures are given insufficient attention. No matter how physical structures may be cognized and integrated into norms and values, they still operate independently of human thought.

I do not argue that monoscalar description characterizes all agency studies. To take one example, Joyce (2000) considers the role of agency in the rise of hierarchical complexity in the Valley of Oaxaca. He suggests that increasing competition characterized the time period 700-500 BC, possibly because elites of San José Mogote "may have increased demands for goods and labor from commoners" (2000:77). Joyce's work is evidence-based and plausible, but one is left wondering about the motivation of the nobles. Were monuments built solely due to the whims of aggrandizers or can we leave open the possibility that physical environmental shifts might have set in motion deficiencies in food supplies or motivated a felt need for mollification of the spirits? However detailed and well researched, such studies as Joyce's allow consideration only of sociopolitical causes of complexification, conflict and the creation (or affirmation) of sociocultural practices, while ignoring the role of physical-environmental structures that can facilitate or constrain social change.

Phenomenology

For phenomenologists, basic human understandings are realized only by dwelling in a social world populated with materials experienced not as things-in-themselves, but within a network of relations with other people and things (Thomas, 2006). An object may be experienced in a number of different ways, given the use-context in which it is regarded or employed and how it reveals itself as an already understood phenomenon (Heidegger, 1962:78–86).

The phenomenological perspective is reflected in Ingold's concept of landscape: "the world as it is known to those who dwell therein, who inhabit its places and journey along its paths connecting them" (2000:193). The human subject is present as being-in-the-world and the world that the subject is "being-in" is the landscape; each implies the other. In a foundational essay, Ingold describes a harvesting scene painted in 1565 by Dutch artist Pieter Bruegel the Elder.[4] Ingold sees in the image a "taskscape" populated by peasants laboring in association with their fellows. The reader is invited to gaze from foreground to background—a pear tree, a nearby church, pathways, a hay wagon, a village sporting green, the distant harbor. As we gaze outward, an expanding network of relationships becomes visible.

Even if we assume that this bucolic snapshot is a faithful image of engagement with the landscape instantiated by patterned cooperative tasks, the image remains uninterrogated. In his mind's eye, Ingold observes the workers' communal repast, hears the murmured conversations and the snore of the sleeper and smells the newly threshed wheat. From this hermeneutic process, he posits a eudemonic, synchronic taskscape. He has chosen to emphasize certain aspects and ignore others.

Another observer might notice different elements, focusing instead on the subservient status of the peasants, intimately working a land from which they are forever alienated. Another might take a more focused view and note with disapproval the cock-throwing activity underway on the distant green.[5] A third might take a longer-term outlook and wonder about the economic matrix of the harvest, situated in a region of Europe poised on the threshold of commercial expansion (Wolf, 1982:114–117). A fourth might situate the painting itself in the tumult of the Protestant Reformation and speculate about whether the artist chose to paint landscapes rather than religious subjects to avoid controversy during the Inquisition. At an even broader temporal scale, a fifth observer might note that soon the region would be engulfed in the Eighty Years' War against Hapsburg regents.

The temporality of the scene described by Ingold is narrow, with relations of power, privilege and potential unspecified. Will the sleeping peasant awaken to visualize emancipation from his "taskscape"? Will the women gathering wheat stalks abruptly declare they have had enough manual toil and journey to town to become clerks? Neither scenario is at all likely due to constraining relations of kin reciprocity, social norms and economic obligation.

My point is that—even at one frozen moment in time—there are multiple ways of comprehending this scene and we can never truly experience it from the vantage point of the grain reaper or the dock worker because we can perceive it only from our own embodied, situated consciousness. None of us—not I, not Ingold, not even the contemporary audience who first gazed upon Bruegel's painting in 1565—can claim to have truly experienced the scene. Ultimately, the painting is an interpretation and our descriptions of it are interpretations of an interpretation, one no truer than another. Without reference to broader and narrower scales of space-time, we cannot move beyond idiosyncratic description. As Bender puts it,

> even for people who live in the same place for generations and work 'within their knowledge,' there are always other places (real or encountered through hearsay, story and imagination). The familiar topography gives way to the unfamiliar, one landscape nests within another like Chinese boxes—except that the boxes are permeable. (2001:83–84)

A phenomenological perspective can yield rich descriptions of people within their spatial-temporal milieu, but is poorly suited to the investigation of process.

Because human action *can* change sociohistorical structures, phenomenologists assume that the latter are epiphenomenal, that is, that the sociohistorical contexts of action are intersubjectively negotiated, so that they could be and would be altered if individual agents so desired (Archer, 1995:84–89). By focusing on action and relations in the present, the phenomenologist cannot move beyond a specific temporal scale to see impinging sociopolitical and physical structures at longer and shorter scales. In a dialectical approach, both sociohistorical structures and the concrete consequences (intentional or unintentional) of previous actions can set the conditions for action in the present.

Finally, a phenomenological approach can stifle comprehension of interscalar relations and foreclose the opportunity to comprehend not only relationships between individuals operating at various spatial and temporal scales, but also the prospect of recognizing how agents at lower scales of activity can exert meaningful influence in spite of their ostensibly inferior position and how such controls wax and wane through time depending on structural conditions, both sociohistorical and physical. It was this insight that led Crumley (1979:144, 1987c:155–159) to introduce to anthropology the concept of *heterarchy*.

Relational approaches

The past 20 years have seen increased interest among anthropologists in treating things or objects as active players in human life, not just as incidental props or products of day-to-day living. These scholars reject the Cartesian subject-object dichotomy and posit things to be capable of agency independent of human activity (Latour, 2005; Meskell, 2004; Skousen and Buchanan, 2015). Like people, things have their own biographies (Gosden and Marshall, 1999) or itineraries (Joyce and Gillespie, 2015) and can enter into relationships with people.

Some scholars argue that things should be given equivalent ontological status with people in attempts to understand the past (e.g., Henare et al., 2007). Dichotomies such as social/material and artifact/maker-user are regarded as suspect because they privilege humans over non-human materials. Proponents argue that a fruitful account of the past is a "personal and social achievement" (Shanks, 2007:589), not an iterative process of closing in on how the past actually unfolded. Such scholars adopt the term "symmetrical archaeology" for their studies (e.g., Shanks, 2007; Webmoor, 2007; Witmore, 2007; see Wallace, 2011:96–97, 118–119 for critique).

The notion that people and things are co-dependent is called *materiality*. Daniel Miller conceives this orientation as based in a dialectic in which people interact with things they have made, leading to new relationships in which an object may assume its own trajectory (2005:8). As people move through an ever changing landscape, multiple and overlapping relations with cultural produce are built up, both enabling and constraining human agency. Such complex networks of relations are termed "entanglements" by Hodder (2012), "meshworks" by Ingold (2015), "bundles" by Pauketat (2013).

Most of these approaches have in common an under-utilization of scale.[6] Here I distinguish heuristic scale from effective scale. An example of a heuristic scale is that of David Clarke (1977:11–15), who discusses micro, semi-micro and macro scales in spatial analysis. A heuristic application of temporal scale would be the familiar time periods and phases that populate the chronology charts of archaeologists. In such cases, the scale is intended as an abstract, practical tool of investigation or data presentation (Bailey, 2007:202). One can debate whether or not these abstract scales of analysis provide useful insights, but these are questions of epistemology, not ontology.

By contrast, an *effective* or ontological (Wallace, 2011:139) scale is one at which people "comprehend patterns, recognize homogeneity, plan for the future and operate in the present" (Marquardt, 1992:107). In practical application, effective spatial scales can be identified by investigating boundaries—e.g., linguistic, ethnic, commercial, religious, climatic—and how they change through the interaction of people with their physical and sociohistorical environments (Marquardt and Crumley, 1987a:12–16). Temporal scales too must be non-arbitrary because both the actualization of human decisions and our analytical recognition of them as effective, depend on ontological conceptions of time and time flow on the part of the social formation being studied (Bailey, 2007:200–202; Wallace, 2011:158–160).

For example, when overarching political authority weakens, regional and local relations of power and reciprocity are (re-)asserted, as are relations between individuals operating at lower and higher scales. Such a shift in the scale of decision-making solidifies regional identity and local pride, boundary security and emerging relations of reciprocity. Responsibility and collective agency are thus reset at effective scales at which effort can be observed and rewarded (Crumley and Marquardt, 1987:617–623).

Thus, an effective scale (Crumley, 1979:166) is not arbitrary, but instead reflects a recognizable, specific set of relationships between people and their material surroundings emerging through time (Wallace, 2011:139–148) and responding to changing sociohistorical conditions (Marquardt and Crumley, 1987a:16). Knowledge of the objective world exists only in historically specific social forms (Bhaskar, 1979:14). In the dialectic-of-scale approach that I advocate, one investigates not only the relations at one effective scale but also those between scales, in both space and time.[7]

Conclusion

I argue that a dialectical method is advantageous to Historical Ecology. Dialectical critique and practice are always unfinished because the world continually changes, as does our comprehension of it. Unfinished or not, in order to enter into discourse, historical ecologists must at some point produce narratives about what we have learned. We must temporarily abandon dialectical reason for analytical reason and speak to our audience within the language of space, time and causality (Bhaskar, 2016:124). Convincing others of our understandings, and inspiring action based on our insights, are important kinds of practice. The long-term, multiscalar insights of Historical Ecology can guide conservation and restoration efforts and show how indigenous strategies and techniques of fishing, farming and landscape manipulation succeeded (or not) and under what conditions (Crumley, 2018; Lennartsson et al., 2018).

Understanding a social formation within its cognized environmental setting initially requires bracketing it in time and space with the assumption that the initial "closed system" is not what it seems to be, but that it is in fact related historically and spatially to other social formations. By exploring relations *at multiple effective scales*, the analyst can begin to comprehend social formations in ways that reflect their true dynamic flux. The aim is to employ a dialectic of scale to investigate human social life, past and present and to derive from that comprehension a path toward practice appropriate to our own time.

Structurational, phenomenological and relational/symmetrical approaches can provide valuable insights and help us visualize processes and relations, but are less well suited to investigating the dialectical interplay of people in their multiscalar relations with one another and with their cognized environments. Ultimately, these approaches lack a calculus of verification. By contrast, the efficacy of dialectically produced models can be verified in the real world. This applies equally to models derived from archaeological, historical, ethnographic and paleoecological studies.

People do not always succeed in developing resilient social formations, nor do their spiritual beliefs, political strategies or economic policies always serve them well when the physical environment changes. A strong current of conservatism pervades the human psyche in that we would all be glad if strategies that were successful in the past were equally efficacious today, but in fact the world around us is never the same. Physical environmental changes, resistant forces actualized by leaders with vested interests in maintaining the status quo and the unintended material consequences of past collective actions often prove problematic and require novel solutions. Models and ideas that were appropriate and effective in the past are inadequate today and today's notions will be inappropriate for circumstances tomorrow (Marquardt, 1992:110–113).

Developing case studies of the successes and failures of past social formations is an important contribution of historical ecologists. Some impressive studies have been accomplished and important research is underway today. But operative strategies for effecting change are best developed and coordinated by like-minded people working collectively (McGuire and Wurst, 2002:89–90).

Mohandas Gandhi's 1930 walk to the sea to make salt in colonial India (Dalton, 1996) and Rosa Parks' 1955 refusal to give up her seat on a city bus to a white person (after the whites-only section was filled) in Montgomery, Alabama (Theoharis, 2011) were pivotal actions that precipitated significant changes in sociohistorical structure. Although both acts of defiance required immense personal courage, the successes achieved in both cases were not due to individual agency alone, but because of well-coordinated collective action. This is not to say that individual agency is trivial, but simply to argue that except in rare circumstances, change in sociohistorical structure will be more effective: (1) when pursued by a group of like-minded individuals who comprehend the workings of the system they intend to change; and, (2) when they coordinate their practice based on their understandings of that model. In my judgment, informed Historical-Ecological knowledge is needed today more than ever before. Historical Ecologists can make a difference and never has the urgency of commitment been more obvious.

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Notes

1 I adopted such an approach in my dissertation research, in which I modeled late prehistoric cultural change in western New Mexico (Marquardt, 1974).

2 Agricultural economists use the term "landesque capital" for such human investments; for anthropological applications, see Håkansson and Widgren, 2014.

3 For example, Celtic bonfire festivals in southern Burgundy, France, take place annually on or near St. John's Day (June 24). At the scale of the local village, participants widely believe that these fires are vestiges of Celtic customs dating back more than two millennia. Although bonfire festivals have indeed been popular for many centuries at various times of the year throughout Europe (Frazier, 1913), Burgundian "Celtic" fire festivals were in fact invented and instituted between 1923 and 1927 by a coalition of prominent bourgeois intellectuals who wished to strengthen regional identity and pride (Marquardt and Crumley, 1987b). That is, they took known historical icons and circumstances and melded these into specific themes and procedures that they then promoted as authentic ancient social practices, thus "inventing tradition" (Hobsbawm, 1983). Strengthening regional identity can be advantageous to leaders and business people because it not only establishes lateral (same-scale) relations that facilitate coordination of business ventures, but also leads to regional consensus that can be useful as the same leaders solidify advantageous vertical relations with higher-scale government officials and business leaders (Marquardt and Crumley, 1987b:378–380).

4 An image of the painting can be viewed on the website of the Metropolitan Museum of Art, www.metmuseum.org/art/collection/search/435809. See also Hicks (2016) for commentary on Ingold's paper.

5 The popular pastime consisted of tossing weighted sticks (*cocksteles*) at a bird tied to a post until the unfortunate animal expired.

6 There are exceptions. For example, Lawres (2017) employs a multiscalar approach to an ontological study of monumentality in the pre-contact Belle Glade region of south-central Florida while Romain (2015) relates Adena-Hopewell earthworks to broader-scale cosmological principles.

7 Although he does not use dialectical terminology, Snead (2008) employs a nonarbitrary scale concept that is similar to Crumley's notion of effective scale. Employing a multiscalar investigative procedure, he argues for a contextual-experiential approach to landscape archaeology and focuses on dramatic changes in five communities in the northern Rio Grande region of New Mexico ca. AD 1250–1500. Remarkably, although he discusses evidence for competition, hostility, defense and resource overuse, he makes no mention of environmental factors as contributing influences.

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2 Historical Ecology and longitudinal research strategies around Lake Mývatn, Iceland

Thomas H. McGovern, George Hambrecht and Megan Hicks

In 1990, Carole Crumley invited a group of both established and early career researchers, including a very junior Thomas McGovern, to a memorable *School of American Research* seminar in Santa Fe NM. The result was the core volume *Historical Ecology* (Crumley, 1994) which launched the cascading developments of the HE interdisciplinary tool kit that has expanded, evolved and grown beyond what any of us could have expected back in the last century (Balée, 1998, 2006; Balée and Erickson, 2006). Historical Ecology now informs a host of projects ranging from digital model building to restoration and conservation efforts, to field projects all over the globe and shows huge vitality as new generations step forward to embrace and enhance the initial formulation (see Armstrong et al., 2017; Crumley, 2012). Crumley's impact in archaeology was already notable in 1990, with innovative landscape-scaled investigations in Burgundy and beyond, heterarchies contesting hierarchies in multiple settings and vigorous and sustained collaborative field work projects. She forcefully advocated for a "*longitudinal*" research strategy that focused on a region and its landscapes changing through time and invested significant resources and multiple seasons on returning to the same area to better understand long-term human ecodynamics. Her current efforts on behalf of the *Integrated History and Future of People on Earth* (IHOPE, http://ihopenet.org/) have addressed the key theme raised at the original 1990 workshop: the vital importance of the perspectives of the *longue durée* in current attempts to secure a better and more sustainable future. Her career path has been hugely influential, and her continued work provides role models for both early career and increasingly ancient scholars participating in the Historical Ecology agenda.

This paper (prepared by a mix of early career and ancient) offers a perspective on the sustained application of Carole's *longitudinal* strategy to the inland lake basin of Mývatn (midge lake) in northern Iceland carried out by the *North Atlantic Biocultural Organization* research and education cooperative since 1996 (www.nabohome.org). The Mývatn basin in north Iceland is 50–80 km from the sea and lies about 280m above sea level. It represents one of the highest continually occupied parts of Iceland and farming has centered on grass and hay production for domestic animal fodder, though limited barley production may have taken place in the Viking Age settlement period (Ogilvie, 1992, 2001; Ogilvie et al., 2015). The region today combines agriculture with a booming tourist industry and is a long-term center for environmental activism. It has also been the center of sustained archaeological and environmental science investigations for over a century. These longitudinal investigations have produced a fully landscape-scaled perspective on human settlement and land use in this part of Iceland that has been greatly aided by widespread volcanic ash deposits (tephra) and a host of AMS C14 dates provided as part of a coordinated program aimed at better understanding what proved to be a freshwater carbon reservoir effect. Publications on the project include: Ascough et al., 2007 et seq.; Brown, 2010; Dugmore et al., 2004, 2007, 2014; Dugmore and Newton, 2012; Jones et al., 2012; Lawson et al., 2004; McGovern et al., 2006, 2007, 2014, 2017; Simpson et al., 2001, 2004; Streeter et al., 2015; Vésteinsson, 2008; Hicks, 2014; Hicks et al., 2016; Sigurðardóttir et al., 2016; see also field reports on www.nabohome.org.

Archaeological research in the Mývatn region began with survey and excavation work by Daniel Bruun and Finnur Jónsson at the site of Hofstaðir in 1908 (Bruun and Jónsson, 1909, 1910, 1911). Recent work began in 1992 with a small project centered on the Hofstaðir ruin led by *Fornleifastofnun Íslands* (the Institute of Archaeology, Iceland) who invited in the teams of the *North Atlantic Biocultural Organization* (NABO) research and education cooperative when it became clear that this site had considerable remaining research potential for re-investigation using modern excavation techniques and a full spectrum of environmental specialists (Lucas, 2009). This new work provided an opportunity, not only to try new techniques, but also to use the large open area excavation as the center piece for an international field school (begun in 1996) that attracted students from multiple disciplines (saga scholars to hard scientists) from North America, Europe, China, Japan and (importantly) Iceland. This international crew provided many opportunities for two-way learning. In retrospect this multi-year field school had a major impact on the development of the once-marginal North Atlantic into a "hot" research area for Historical Ecology and Human Ecodynamics research (McGovern, 2012).

While the work at Hofstaðir continued, survey work around the lake was turning up multiple sites with excellent organic preservation and early tephra associations, suggesting that much remained to be learned as we expanded the excavation and environmental sampling program. Collaborators came from the University of Stirling in Geoarchaeology; from the University of Massachusetts, Boston in geophysical prospecting; from the University of Edinburgh in tephra and geomorphology; from the University of St. Andrews and the University of Durham in pollen and macrofloral analysis; and isotopic researchers came from the University of Glasgow and the Scottish University Environmental Research Centre. These experts spread across the region digging geo-trenches, coring lakes and bogs, investigating charcoal pits and building up a multi-year, multi-stranded understanding of human interactions with landscape, climate and resources that could fuel high-resolution modelling (Ascough et al., 2007, Colquhoun et al., 2010; Dugmore and Newton, 2004; Simpson et al., 2004; Thomson and Simpson, 2007). All this research was provided with invaluable help and excellent hospitality by Dr. Árni Einarsson of the long-established *Mývatn Science Station* (http://www.ramy.is) of the University of Iceland. Trained as a biologist, Einarsson's skill at reading landscape (from both the ground and air) and keen eye for cultural traces has made him an all-time high scorer in locating new archaeological sites in the region, ranging from extensive early earthworks to some of the most productive midden sites in the area (Einarsson, 2015). The combination of informed local expertise with international collaborators has proved incredibly productive and these strong professional and personal bonds are also not easily forged over a few project seasons.

While the international field school was attracting groups of diverse twenty-something graduate students to Mývatn and the landscape was increasingly swarming with specialists and survey teams, we also had a chance to hear from the local Icelandic residents about their own past and current natural and social environment. It turned out that they had a great deal to contribute, from oral histories to troves of unpublished photos and manuscripts and a host of detailed place names that clearly connected to the medieval and Viking age landscapes. The region has a long history of engagement between local and traditional knowledge and the evolving Western scientific disciplines. Hand-copied translations of Marx and other European intellectuals, as well as debates on evolution and agricultural improvement, circulated widely in manuscript form in the nineteenth century. With this tradition of active self-organization, it should not have been surprising that local residents began making use of these non-avian seasonal migrants and some warm friendships and real collaborative partnerships grew as the project seasons rolled on. These connections went from *ad hoc* Land rover repair help to extended co-production of knowledge with resident scholars of local and traditional knowledge and folklore (Sigurðardóttir et al., in press; Hartman et al., 2017).

Notably the local schools and local heritage activists organized a *Kids Archaeology Project Iceland* (KAPI) and (later) a *Seniors Archaeology Project Iceland* which both brought school groups into the field with our teams in summer and launched a program of using GPS and digital recordings to capture rapidly fading place name evidence and associated tales and legends in collaboration with the Icelandic Place Names Institute and the Icelandic Geodetic survey and the local Husavík Museum. We were able to facilitate this work by providing first simple GPS receivers and small digital cameras and then integrated iPad technology to engage students and elders. A National Science Foundation research experience for undergraduates (REU) grant to Dr. Sophia Perdikaris (then CUNY Brooklyn College now

University of Nebraska) brought groups of inner New York City undergrads to Iceland and their interaction with the KAPI students, local scholars and the international science teams proved genuinely transformative (on many sides). Some of the REU participants are now in doctoral programs, but the majority are high school science teachers who regularly use their Icelandic experiences in the urban classroom. The long-term connection with Iceland and Mývatn thus works on both sides of the Atlantic. Dr. Perdikaris was able to provide mobility support so that Mývatn activists could visit Orkney in Scotland and Barbuda in the Caribbean and make direct contact with other local level school and community led initiatives combining archaeology, heritage and environmental science with place-based education and education for sustainability. These webs of connection have proven very productive and again are only possible with a sustained multi-year effort on all sides.

In the archaeology, major excavations at the sites of Hofstaðir, Hrísheimar, Sveigakót and Skútustaðir have been combined with smaller-scale surveys and testing at sites across the lake basin and have produced a fully landscape-scaled perspective on human settlement and land use in this part of Iceland. The unusually complete archaeological record for the Mývatn area indicates that initial Norse settlement in the late ninth century was unexpectedly rapid with settlement spreading across the basin following the deposit of the Landnám (literally, land-picking/settling beginning 877 ± 1) tephra layer and before the fall of the V-Sv (938 ± 6) tephra (Batt et al., 2015; Schmid et al., 2017). It appears that multiple sites in both prime farm land and more marginal locations were occupied within the first generation, with clear implications for the overall rate and scale of the settlement of Iceland (Vésteinsson and McGovern, 2012). We still have much to learn about the Viking Age in the North Atlantic (Vésteinsson and Gestsdóttir, 2015).

Another unexpected finding was the documentation of a remarkable millennial scale sustainable harvest of migratory waterfowl eggs by the local community. Mývatn is famous in biology as the only place where tens of thousands of migratory waterfowl from both hemispheres come together to nest and lay eggs. Ethnographic accounts from the nineteenth and twentieth centuries, and systematic records of the Science Station, reveal that local people were able to regularly harvest 10,000 or more eggs per year without impacting the waterfowl populations. The basic rule has been to not kill adult birds and leave enough eggs in each nest to prevent abandonment (while supressing arctic fox and controlling domestic dogs and pigs). The well-dated Mývatn archaeological deposits extending back to the first settlement layers ca. 877 CE have produced masses of egg shell (now demonstrated by Scanning Electron Microscopy to largely come from waterfowl), but few adult bird bones (Hicks et al., 2016, Brewington and Hicks, 2015). This case is becoming widely known as a solid example of successful bottom-up community management of inherently fragile natural resources on the millennial scale. This combination of bioscience, archaeology and traditional and local knowledge is also a result of long-term commitment and many sustained conversations across multiple boundaries (Hicks, 2014; Hicks et al., 2016; Sigurðardóttir et al., 2016).

Hofstaðir itself provided continued surprises: the zooarchaeology clearly indicated that this was a working farm, but also turned up evidence of dramatic ritual beheading of cattle and display of bucrania around the great hall (Lucas and McGovern, 2008). An early Christian family cemetery probably holding the remains of closely related Mývatn residents from ca. 1000–1300 CE provided another sustained excavation program led by Hildur Gestsdóttir and is now subject to multiple studies using osteology, dental morphology, stable isotopes, ancient DNA and the zooarchaeology of an archaeofauna ca.1300 which shows evidence of resilient response to cooling climate in the Middle Ages (Gestsdóttir, 2014; Price and Gestsdóttir, 2006). The monograph edited by Gavin Lucas (2009) pulls together the sustained excavation effort at the Viking age great hall and serves to underline the sobering fact that had we undertaken a "standard 3 years and out" project we would have been seriously wrong about much of the story of this site and region.

There is sound science behind the idea of a long-term commitment to a research region. There are also excellent rewards on many different levels for pursuing the longitudinal pathway and Crumley's influence has been felt far from the vineyards and fields of Burgundy. Iceland today is seeing the creation of similar long-term research areas in Svalbardshreppur, Eyjafjörður, Skagafjörður and in the West Fjords by similarly international and interdisciplinary teams also taking the long-term longitudinal perspective to connect past to present and future.

Major findings from this increasingly inter-connected longitudinal research program include:

- There is probably no "one size fits all" model for the Icelandic first settlement process. In the South West (around modern Reykjavik), an initial settlement and exploration by walrus hunters seems to have come shortly before the arrival of the chiefly farmers who play such a major role in the later documentary sources (Frei et al., 2015). In other areas like Skagafjord and Eyjafjord large, probably high-status farms rapidly emerge centered on high quality pasture, with smaller sites filling in around them (Steinberg et al., 2016; Harrison, 2010). In Myvatn, rapid infilling of even marginal locations by small and medium sized farms took place almost immediately (Daviðsdóttir et al., 2017; Schmid et al., 2017) and at Svalbardshreppur in the Northeast, a complex pattern of coastal settlement and hinterland development is emerging (Gísladóttir et al., 2013). Multiple longitudinal place-focused projects are revealing unexpected complexity in local settlement sequences and suggesting far greater maritime capacities in the early Viking Age than once modelled.

- An initial Viking-Age farming strategy that made use of some barley fields, but probably emphasized stock raising of pigs, cattle, sheep and goats saw widespread simplification ca 1150–1250 as pigs and goats become rare and sheep increase in numbers. The domestic mammal economy of the "saga age" was increasingly aimed at producing a wool surplus for internal and overseas exchange. At the same time, there was an intensification of the Viking-Age pattern of artisanal production and distribution of diverse dried marine fish products (made from many members of the cod family) to produce a standardized product ("stockfish") made only from Atlantic cod for export rather than local consumption. By 1300 (when climate shifted decisively colder) Iceland was seriously engaged in overseas trade as well as maintaining a subsistence pattern based on stock raising and marine fishing.
- These high medieval changes are not seen in contemporary Norse Greenland and constitute a critical point of pathway divergence between the two island communities—only one of which survived the Middle Ages (Nelson et al., 2016; Smiarowski et al., 2017). The interplay of climate change, local subsistence economy and the impacts of distant markets and early globalization are all themes that have emerged from the Historical Ecology of the North Atlantic and all connect with Carole Crumley's emphases on cross-scalar interactions.

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3 Gender, feminism and heterarchy

Janet E. Levy

When Carole Crumley (1979) first introduced the concept of heterarchy to archaeologists, it was within a specific context of analysis of social systems in prehistory and protohistory. She described the origins of the concept in the study of cognitive structures of the brain and in artificial intelligence and computer design (Crumley, 1987; McCulloch, 1945). But, her main goal was to adapt the concept of heterarchy to a critique of overly simplistic models of the evolution of prehistoric social systems. She has been especially interested in the development of so-called "complex" societies (Crumley, 1979, 1987, 2005). As other archaeologists and historians, including myself, explored the concept, it was applied to other analytical realms as they were connected to social and political structures. These include craft specialization (Ehrenreich, 1995), ritual (Byers, 2006, 2011; Levy, 1995) and landscape, environment and settlement pattern (Crumley and Marquardt, 1987; Joyce and Hendon, 2000; Scarborough and Burnside, 2010; Spencer-Wood, 2010).

During the same period, 1970s through the 2000s, the topic of gender expanded within European and American archaeology (Conkey and Spector, 1984; Stig-Sørenson, 2013). Now, more than 35 years on, I am still surprised that the two areas of discourse have overlapped relatively little. Publications by Suzanne Spencer-Wood (2010, 2011) on feminist theory and on landscape and power in historical archaeology are among the few exceptions. Hutson et al. (2013:53–55), in a recent review of literature about gender and power, also discuss some of the issues in bringing gender and heterarchy together but they prefer other approaches. Hanson (2009), discussing precolonial Buganda (east Africa), hints at a link between heterarchy and gender, although this article focuses on map evidence to demonstrate heterarchical aspects of Buganda political structure.

In this chapter, I explore how the concept of heterarchy contributes to an archaeology of gender and to a feminist archaeology (topics which are connected but not identical; Spencer-Wood, 2011) and how incorporating gender can strengthen the archaeological application of heterarchy.[1] To start, I want to mention how the concept of heterarchy is used outside of archaeology. Our colleagues in sociocultural anthropology have demonstrated little interest in the term (although see Bialecki, 2017 for a dense, theoretical discussion that incorporates heterarchy). However, other scholarly disciplines find value in the concept; a recent search yielded titles, dated 2016–2017, from such scholarly journals as *Trends in Ecology and Evolution*, *Progress in Biophysics and Molecular Biology*, *Comparative Education, Engineering Applications of Artificial Intelligence, Mediterranean Politics, Neuroscience & Biobehavioral Reviews* and *Journal of New Music Research*. On the Web, the dominant discussion seems to be in management and business. In those sources, enthusiasts for heterarchy frame it as “best defined by its opposition to hierarchy” (Ogilvy, 2016) or as emphasizing decentralization (P2P Foundation, 2010) or as based on “collaborative structures and lateral coordination…” (Center on Organizational Innovation, n.d.). David Stark is an advocate of heterarchical structures for business firms, arguing that heterarchy improves flexibility and adaptability in the face of significant challenges of global competition and economic change. It appears to me that, in management, the concept of heterarchy is set up as a contrast to hierarchy and is tied to explicit advocacy for flatter, more egalitarian control structures, what Stark (2001:71) calls “lateral or distributed authority.” My reading of the material suggests that authors often connect heterarchy to the expansion of digital information sources. However, I think that an emphasis on egalitarianism as the core attribute of heterarchy may weaken the effectiveness of the concept for archaeologists and it is not how Crumley originally conceptualized heterarchy.

Let’s turn briefly back to how Carole has defined heterarchy for archaeologists: the relation of elements one to another when the elements are unranked or when they possess the potential for being ranked in a number of different ways (Crumley, 1979, 1987). These elements could be individuals, human groups, communities, places on the landscape, or presumably values, symbols and aspects of ideology. As she has noted in several publications, hierarchy is a subset of heterarchy (rather than being, as stated by some, the opposite of heterarchy). I think it is fundamental to understand that heterarchical societies or communities are not necessarily egalitarian. But, neither is hierarchy the only aspect of complexity.

Let me also define my understanding of an archaeology of gender. Historically, an archaeology of gender grew from frustration with the invisibility of women, specifically, in accounts of the past. But, a developed archaeology of gender incorporates analysis of concepts of maleness, femaleness and other related or mixed identities, the roles played by people so identified and the interconnections of gendered ideologies and practices with other aspects of daily life. There is a strong connection between archaeologies of gender and feminist archaeology, but they are not identical (e.g., see Stig-Sørenson, 2013). I refer you to Alison Wylie’s (2007) article, *Doing Archaeology as a Feminist*, for more detail (see also Spencer-Wood, 2011; Levy, 2014).

Most fundamentally, the reason that we should think about gender and heterarchy together is that gender is a key social quality that sometimes supports, sometimes contradicts and sometimes crosscuts other aspects of social identity and social organization. In most, perhaps all, societies, gender has implications for influence, power and agency: these same characteristics are also fundamental to understanding social, economic and political organizations, as well as human modification of the landscape. Over the years, it has seemed to me more and more that gender and heterarchy are intrinsically connected concepts. In addition, the concepts of gender and heterarchy have both served as disruptive forces in archaeology, a point I will return to below.

Heterarchy and diversity in gender roles

To start, the idea of heterarchy reinforces our attention to the diversity and flexibility of gender roles and positions in human societies and communities studied by archaeologists (as well as the diversity and flexibility of sexual identities). Early gender archaeology focused on illuminating the ignored role of women in the past; later, authors began to consider the lives of males from an explicitly gendered, but non-androcentric perspective (Alberti, 2006). Even more recently, archaeologists have become more aware of the limitations of a dichotomous model of gender that ignores the possibility of third or fourth gender individuals or multi-gendered individuals, or perhaps non-gendered individuals, in past societies (Joyce, 2008; Ghisleni et al., 2016). The further back in time, the greater the possibility that ideas about individual identities, including gender identities, were very different from any that we are familiar with.

Gendered archaeology has had a tendency to focus on relationships of dominance and unequal power and agency (almost certainly due to the life experiences of archaeologists and other scholars interested in gender). A heterarchical perspective does not eliminate examination of gendered relationships of dominance and submission, but encourages us to see stratification as only one aspect of complexity. Heterarchy encourages us to consider flexibility and shifting of gender identity and multiple axes of influence, power and agency among people of multiple gender identities in any particular case.

One informative case study from a period where some historic documentation is available is Hanson's (2009) of the Buganda polity (a subnational kingdom within Uganda). Hanson reminds us how some aspects of gender-based authority and agency, even from the relatively recent past, may be lost to memory. She points out that in the late pre-colonial period, female members of Buganda royal families held important political roles, owned land and received taxes and tribute; thus, they were one aspect of a complex, heterarchical political organization that encompassed both centralization of and distribution of authority. According to Hanson, heterarchy was a tool for communities to assure accountability by a centralized government. The elaborate hand-drawn map she discusses, which shows multiple places where people of authority lived, "…makes visible the political compromises and accommodations…" and the "lived practices of power relations" (Hanson, 2009:181) of a system that can be described as both hierarchical and heterarchical. However, the power of royal women diminished rapidly and was "disappeared" by several developments of the mid- and late nineteenth century, including the increasing violence generated by the colonial experience and the way the British authorities ignored any influence or power practiced by women (Hanson, 2009:184). By considering both gender and heterarchy, we expand our understanding of this particular polity and the diverse means by which complex communities organize themselves.

Intersectionality

Another way to think about the connection between gender and heterarchy is that heterarchy is congruent with, in fact encourages, a perspective of intersectionality. Intersectionality is a key tenet of contemporary feminist thought, originating in black feminist scholarship, that emphasizes the non-monolithic character of the category of "woman" (Bolger, 2013:10; Collins and Bilge, 2016). That is, we need to think about the differing life courses of individuals who experience and express cross-cutting (or, "intersecting") aspects of identity. For prehistoric archaeology, interesting intersecting qualities may include gender, sexuality, age, wealth, status, family, ritual knowledge, etc. While feminist theory emphasizes that multiple axes of identity are important to both individuals and groups, heterarchy emphasizes that multiple axes of social differentiation influence the expression of power and rank in a society. In one example, from the southeastern US, Sullivan and Rodning (2011) demonstrate that analysis of late prehistoric/early historic burials from the Cherokee region of eastern Tennessee/western North Carolina is enriched when one considers gender and age at death together. Sullivan and Rodning also make a clear argument for the importance of lateral differentiation as well as vertical differentiation. They demonstrate that males and females are buried in different contexts: males near the central town house in a context usually identified as public and females near domestic structures in a context usually identified as private. Conventionally, the public context is considered more highly ranked than the domestic or private context. But, Sullivan and Rodning make a persuasive argument that this interpretation is both androcentric and ethnocentric and ignores potential complementarity of sources of influence and power. Public and military influence may be more important than influence on the household economy in *our* current surroundings, but that does not demonstrate the same attitudes in other past communities. That is, both a gendered and a heterarchical approach help us better understand the complexity of complexity, beyond an emphasis on ranking alone.

Disrupting archaeology

As I noted above, a significant way that gender and heterarchy are connected in archaeology is that they are both disruptive: they deconstruct established understandings or they can be used to do so (see also Hutson et al., 2013). A gendered archaeology has disrupted implicit understandings of dichotomous gender roles and division of labor, for example (Ghisleni et al., 2016). Crumley introduced the concept of heterarchy specifically to disrupt conventional understandings, often not made explicit, of social complexity. This is perhaps the most significant place where heterarchy and gender meet: there has been and remains to some degree, a strong tendency to conflate "complexity" with hierarchy and hierarchy with "progress" (or "civilization," to use an earlier vocabulary). Indeed, Crumley would go on to say that "complexity" is often conflated with "progress," which is often conflated with "order" (1987, 2005); thus, the implication that societies which cannot be described as complex or civilized are inherently disorderly.

Hierarchy is usually gendered male (sometimes explicitly, often implicitly); thus, the conventional discussion of complexity makes women not only invisible, but not part of progress or order. In much analysis, *differentiation* (for example of grave goods or domestic structures) is identified as *stratification* (Brumfiel, 1995:130). By introducing heterarchy and gender to the discussion, we can explicitly consider multiple axes of distinction, multiple sources of power and agency and the shifting interactions of all of these in the daily lives of both elites and a broader segment of the prehistoric population than just the "chiefs" or other leaders. By explicitly examining how gender interacts with other aspects of agency, identity and power, archaeologists have the potential to improve specificity in a heterarchical model, something that Brumfiel (1995) suggests would be an improvement.

It is also true that other archaeologists in the early 2000s were reaching similar conclusions without using this specific vocabulary. For example, Derevenski (2000:399), speaking of early Bronze Age Europe, said "The relationship between horizontal and vertical differentiation may therefore be more complex than has hitherto been realized within archaeology." Similarly, Crown (2000:18), speaking of pre-Columbian southwestern US, stated "First, status is highly context specific, so that an individual may have high status in one situation with one group of people and low status in another with another group of people." Statements like these, from both American and European archaeologists, suggest a widespread frustration at that time with existing models of social evolution. My reading of the literature, for what that's worth, suggests that this frustration was greater among female archaeologists than among male ones, which suggests another, subtle connection between heterarchy and gender.

Some scholars have connected the concept of heterarchy to topics of nonlinear modeling, agency theory, chaos theory and other approaches which eschew a top-down perspective (Crumley, 2005; Beekman and Baden, 2005). Most recently, a group of archaeologists who advocate for what they call "anarchist archaeology" (or "anarchaeology") also make reference to heterarchy. They write in the context of calling for an activist archaeology that is sensitized to class, ethnic and gender inequality, is decentralized and community-based and fights against oppression and unequal power in several contexts (Society of American Archaeology, 2017). There is some parallel with the management literature (especially the work of David Stark) in that both of these literatures advocate for cooperation, egalitarianism and collaboration in decision-making and see heterarchy as encouraging these attributes. There is also a connection to feminist theory in archaeology whose advocates often take an explicitly activist perspective, urging the use of new archaeological analyses to resist patriarchal and other oppressive social regimes (Spencer-Wood, 2011). These approaches emphasize heterarchy as a more egalitarian social model than hierarchy. This may move us away from thinking carefully about the potential complexity of social systems, which incorporate *both* more stratified and less stratified social roles and structures.

A case study: heterarchy, gender and craft specialization

By incorporating both gender and heterarchy into our understandings of some of the classic examples of prehistoric middle-range societies, we enrich our analysis not only of socio-political organization, but also of related topics such as craft specialization. A brief example comes from Bronze Age Denmark, a sedentary, agricultural culture dating to approximately 1800–600 BCE and demonstrating evidence of some vertical social differentiation: a classic middle-range society or, what was called in my student days, a chiefdom society (see Harding, 2000 for archaeological detail). Craft production in Bronze Age Denmark included pottery, textiles and bronze and gold metallurgy. V. Gordon Childe (1930) proposed the connection of craft specialization, especially metallurgy, to increasing stratification during the European Bronze Age. There are both implicit and explicit assumptions that, first, metallurgy is a male activity (Randsborg, 1984 makes this explicit for Denmark); and second, that, in Bronze Age societies, it is associated with high-ranking (male) individuals and/or chiefly households. Manufacture of textiles is usually seen as conducted by females and is not discussed as part of the political economy on Bronze Age Europe. However, if we examine the direct evidence of metallurgical production in Bronze Age Denmark, keeping both gender and heterarchy in mind, the picture becomes more complex (see also Stig-Sørenson, 1996).[2]

Metallurgical production in prehistoric Denmark included casting, hammering and engraving bronze and gold objects, but did not include mining or smelting metal from ore; as far as we know, copper, tin and gold were acquired by long-distance exchange, although recycling metal must have played an important role in the later Bronze Age. Bronze objects included tools (e.g., axes and sickles), weapons (e.g., swords and spear points) and ornaments and personal equipment (e.g., neck rings, brooches, razors and others), as well as some elaborate and distinctive items such as drinking equipment and *lurs* (large musical horns). The archaeological evidence suggests that production took place in more than one venue (Levy, 1991): frequently in or adjacent to domestic structures in what appear to be villages, sometimes outside of these venues in some other kind of location or locations that are not fully understood but may include isolated workshops. My own take on this is that elites did not control all metallurgical production and metalworking was mostly a part-time activity. As Stig-Sørenson says (1996), metallurgy must have been associated, at least in part, with domestic daily life.

If we look at the technology of the objects, it is clear that there were multiple stages of production, including: creating stone and clay molds, as well as wax models for *cire perdue* manufacture; acquiring raw metal and fuel; melting metal and pouring into molds; hammering some sheet bronze objects; and producing the elaborate surface finishes that include a range of engraved symbolic motifs. Even if we were to accept the conventional understanding that casting is conducted by men because women would be too absorbed in child rearing to deal with the dangerously high temperatures and molten metal (actually, there are reasons not to accept this but let's do so for the sake of simplicity), there are several other stages of production. Influence and status may have been associated with any number of the stages. Thus, I have previously (Levy, 1991, 1995) described this metallurgical production as potentially heterarchical: with several possible venues, controlled by different categories of persons with differing status and influence and multiple stages of technology, also practiced by different categories of persons.

Thus, metallurgy is *complex* and it may well have hierarchical aspects, but lateral differentiation by gender, age, kin status or other social factors probably played a role as well. If controlling the production of valued metal objects helped create status and influence (as is widely assumed in Bronze Age studies), then control of the engraving of important ritual symbols on metal objects could produce status and influence for the person who made those symbols. At least in the later Bronze Age in Denmark (c. 1100–600 BCE), women displayed many of these metal objects as part of their dress, thus demonstrating their ownership of or, at least, affiliation with the symbols engraved on the objects. Their potential control of part of production could intensify the display of status. There is nothing in engraving symbolically powerful motifs onto a bronze ornament that could not be achieved physically or conceptually by a man, a woman or a third or fourth gender person and we already know that females must have touched and handled these symbols because the objects were part of female costume. As we think about how metallurgy might have been integrated with the dominant Bronze Age labor activities of arable farming and stock rearing, as well as with pottery manufacture, spinning and weaving, woodworking, etc., we begin to approach the true complexity of Bronze Age societies, a complexity of intersecting lateral and vertical differentiation, influence and agency.

Returning to disruption

From the perspective of disruption, if one actively tries to integrate feminist thought and heterarchy into one's practice of archaeology, there are changes not only in interpretations of specific archaeological cases, but also in one's approach to theory. One quality of a feminist approach to scholarship is reflexivity: that is, the explicit examination of one's biases and perspectives, what feminist scholars call one's "standpoint" (Wylie, 2007). Reflexivity leads, I believe, to a recognition of multiple sources of knowledge and multiple approaches to understanding. Similarly, a perspective of heterarchy leads to an understanding of complexity that encourages, indeed privileges, multiple sources of influence and multiple approaches to action. Neither of these perspectives will lead one to relying on a single dominant theoretical model. While some scholars of archaeological theory (or social theory in general) think an eclectic approach weakens our models, I am a "big tent" person who envisages productive interactions between theoretical models.

As a final point, let me return to the relationship of heterarchy and hierarchy. As I noted earlier, in some literatures, these are seen as opposites and the argument for heterarchy is also an argument for changing traditional management models to more egalitarian structures. In the new writing of "anarchaeologists," heterarchy is similarly seen as one model for actively overcoming oppressive power and breaking down inequality. In Crumley's original work on the topic, it is clear that she understands heterarchy to encompass stratification and power differentials. This suggests that our next step, for those interested in understanding past societies through archaeology, may be investigating the details of individual case studies to reveal the specifics and interactions of shifting structures of rank and influence and how these lead to social change. To do this with a feminist perspective would require accepting that daily activities, and the structures of power utilized by genders other than men, are of legitimate interest and influence. They are not just peripheral or weaker alternatives to the structures of so-called "real" power wielded by men.

In her contribution to the discussion of "anarchaeology" (archaeology from an anarchist perspective), Crumley (2017) begins to move her focus for heterarchy from better understanding past human social organizations to creating improved future human communities (see also Crumley, 2012). She advocates for more communal and equitable forms of political structures than currently dominate the globe, which will be able to respond more effectively to environmental challenges to water, air and soil quality that are already upon us. Clearly, it is feasible to integrate also a gendered approach, building on existing discourses about ecofeminism and feminist environmental ethics. This is a topic for another time and place (and author). Social and ecological sustainability will be strongly influenced by structures of influence, authority and agency, all of which are both created and modified by gender roles and values. I look forward to a new generation of archaeological research which will benefit from these perspectives and show us the next steps in improving our understanding of complex, gendered and heterarchical societies past and present.

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Notes

1 This chapter draws on several of my own earlier publications (Levy, 1991, 2006, 2014).

2 My thoughts on the topic of Bronze Age metallurgy have been influenced by Barbara Mills's work on Zuni silver-working and other craft work in the nineteenth and early twentieth centuries (Mills, 1995). Mills points out that in historic Zuni silver-working in household contexts, one person was often identified as the maker of a particular piece; but, in fact, multiple members of the household contributed to production of the piece.

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4 "Can you hear me now?"

Heterarchy as an instrument and outcome of collective action in Iron Age and Medieval Europe

T. L. Thurston

A long debate

Over 100 years ago, classical historians on both sides of the Atlantic participated in a debate over the question of "voice" in Iron Age Italy and the early Roman Republic. On one side was the eminent German, Theodor Mommsen, who held that common people had no political authority in pre-Roman society, and also advocated for Roman exceptionalism in inventing later forms of participatory government where the *populus Romanus* had a vote (Mommsen, 1854, 1885). His counterpart, Columbia University professor George Willis Botsford, who was far less famous and influential, used the assembly tradition as evidence to argue that the commons *did* have a political role (1909:13), that it was already in place in Italy before Rome existed, that it was ubiquitous in contemporary societies and even Indo-European in origin; he speculated that an examination of Vedic society would reveal the same basic structure. Reviewing his work in the early twentieth century, political scientists in the United States agreed, noting that unlike his peers, "from three points of view, the ancient, the conventional-modern and the comparative-sociological, he shows that an exclusively patrician *populus* is impossible" (Magoffin, 1911:20).

If Botsford had convinced his fellow antiquaries of the political role of the *populus*—as he convinced the social scientists—the last few decades' debates about the European Iron Age might have been different. Instead, over a century went by in which the notion of an Iron Age ruled by an autocratic military elite became entrenched, along with the idea that western European society developed through a civilizing emulation of the Roman Republic or *Romanization*.

There are also ramifications beyond Iron Age archaeology, as many standard historical works on European and American history relate the evolution of democracy to seventeenth- and eighteenth-century European colonialism, the rise of Absolutism and the Industrial Revolution. In fact, today's egalitarian traditions, especially the ever-louder voice of the commons through expansion of electoral systems and suffrage, is just the latest chapter

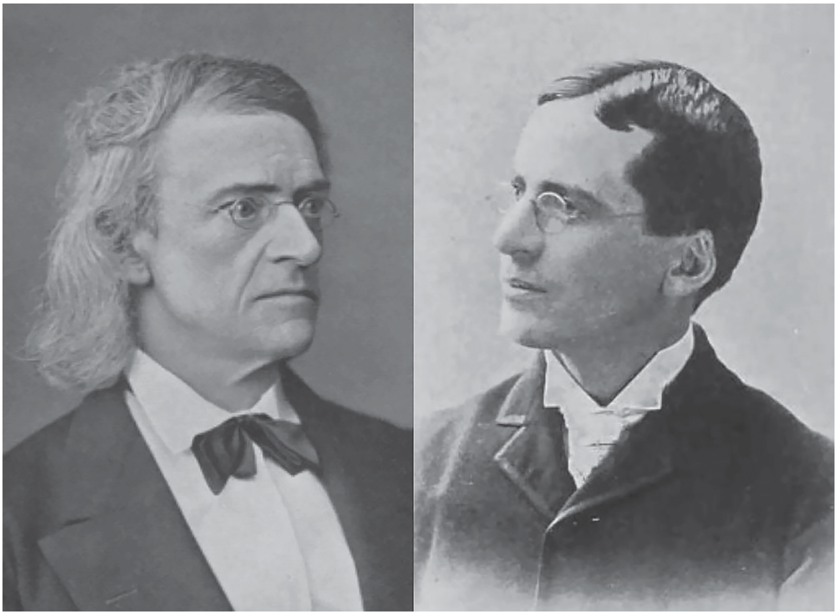


Figure 4.1 Theodore Mommsen (1817–1903) and George Willis Botsford (1862–1917).

in millennia of tension between centralized and decentralized power—not only in Europe, but in many regions of the globe.

Continuing threads

Toward the end of the twentieth century, archaeologists with a focus on late European prehistory debated the sociopolitical form of many Iron Age societies, replicating on a broader scale the arguments of Mommsen versus Botsford. Botsford, of course, did not use the term "voice"; rather, it is one of several key concepts in Heterarchy Theory, introduced by Crumley (1979, 1984, 2003) and Collective Action Theory, a well-developed framework in political science, recently adapted for archaeology by Blanton and Fargher (2007, 2009). This chapter offers a discussion of the relationship between voice, heterarchy and collective action, and additional concepts that feature prominently in both theories. When combined, these create a powerful way of understanding Iron Age societies—or any past society where participatory governance has been either in operation or has been suppressed.

Heterarchy Theory was introduced into archaeology (Crumley, 1979, 1984) as a way of understanding the sociopolitical organization of western Eurasian Iron Age societies.

> There are at least two main types: hierarchical, in which on the basis of certain factors some elements of the organizational structure are subordinate to others and may be ranked and heterarchical, in which each element possesses the potential of being unranked (relative to other elements) or ranked in a number of different ways, depending on systemic requirements.
>
> (Crumley, 1979:144)

In this framework, Iron Age society is theorized as having had several different but equal, internally hierarchical structures that collectively create an orderly sociopolitical setting and act as checks and balances on each other: a military sector, a religious/judiciary sector and an assembly where votes were cast.

Given that militarism and religion can be interpreted as organized in many ways, the most convincing evidence of heterarchic organization is the ubiquity of the "assembly tradition" alongside them, consisting of either or both smaller elite legislative bodies that could check a ruler's power and broad public meetings attended by a voting or participating citizenry—the *thing* of the Scandinavians, *folkmoot* of the Germans, *oenach* of the Irish, *conventum imperator* of the Franks, the *witan* of the Anglo-Saxons, the *eireacht* of the Scots, the *Landsgemeinde* of the Swiss, the *veche* of the Slavs—and many others, where "voice" was an entitlement held by some segment of the public. In cases illuminated by contemporary or near-term texts, the assembly acted as a check and balance on other institutions, especially the worldly realm of the military.

As Botsford predicted, the assembly *was* ubiquitous, even in times and places with seemingly more centralized governance. In Iron Age, Roman, post-Roman and Medieval Europe, the heterarchic assembly institution persisted even after Roman collapse, carried forward in the successor states specifically to give continuity in troubled times (Halfond, 2010:26). In non-Roman Europe—northern Germany, Scandinavia, Scotland, Ireland and much of the Great European Plain—it persisted uninterrupted into the 1100s, the so-called "long Iron Age," and beyond.

Voice is important in two ways: one as a measure of a power from below, equal to that of parallel sectors, the other as an institution established or accepted by rulers in order to accommodate or placate the commons, whether or not the power is real, partial or fully illusory. Many previously powerful vote-casting assemblies were later transformed into venues for expressing approval. This can be seen as a diminishment, but ideologically there is often little difference between a true vote and simple consent or whether voice originates from smaller sub-elite groups or a broad populace. The commoner public often labored under self-deception about the extent of its own power and accepted an artifice of participation devolved from real power (Thurston, 2010:205). Both types of body met in a public display, at least some of the time, and a public gaze that sheds sunlight on elite affairs can be just as important to the contentment of the commons as an actual vote (Rosenthal, 1964:26).

A brief history of "Voice" and the origins of theories on political collectivity

The term "Voice" has long been a synecdoche for public participation, often used as a vernacular term. This is *not* the sense in which it is used here. Rather, it is a specific term associated with the Collective Action Theory of contemporary political science, a framework recently modified for application to archaeological cases (Blanton, 2016; Blanton and Fargher, 2007, 2009). Collective Action Theory describes how societies are organized in terms of the provision (or non-provision) of *public goods*, *fair and predictable taxation* and "*voice*." These ideas were distilled and synthesized from political thought over the course of the twentieth century.

Already in the 1930s, the history of public consent to taxation was being studied in economics (Kendrick, 1939) and by 1940s, psychologists, sociologists and political scientists had were using the concept of collective action to understand cooperation (or non-cooperation) and its outcomes, in regards to taxation, government, social conflict and their interplay with ideologies (Allport, 1940, 1942; Commons, 1950; Wirth, 1940, 1948). By the 1960s (Buchanan and Tullock, 1962) collective action challenged structuralist notions of the state involving methodological individualism—the idea of agent-based change. Soon, an emphasis on public goods, "free-riding," and the concentrated efforts of small groups to effect massive political change were added (Olson, 1965), foreshadowing the turn toward balancing agency and structure that began in the 1970s. By the 1990s, participatory governance, the commons and social action had been combined into contemporary Collective Action Theory (Ostrom, 1990, 1992 1994; Ostrom et al., 1992) and more nuanced concepts were applied across the social sciences (Congleton, 2015:217), including archaeology.

Braided ideas

The archaeological theories of Heterarchy and Collective Action (incorporating Dual Processual theory) share many concepts and principles, but the impetus for Crumley lay along different lines than Blanton et al. While Crumley had begun by trying to explain "irregularities," Blanton et al. were seeking a way to study "regularities" and "predictability" but without the normativity that rendered earlier ideas unhelpful. Both theories sought to erase the notion of "normal" versus "aberrant" political organization and replace them with a framework that simply acknowledged difference and that such difference was not uncommon.

Long before the agency-oriented turn in archaeology, Crumley grappled with profound differences between raw data and the way archaeologists forced this data into normative societal “structures,” whether there was evidence for them or not, noting that

> A prudent course in the investigation of settlement systems in early states would include examination of the evidence which does not fit the hierarchical scheme; such a course may well shed more light than previous studies on the nature of social structure and social change in early states.
>
> (Crumley, 1974:259)

Recognition of the disconnect between the positivist models of the 1970s and the messages in the data led to a critique of the way locational patterns and their analyses were conceptualized by the leading archaeologists of the day (Crumley, 1977).

During the 1980s, approaches that had propped up ideas about the ubiquity of centralization and autocracy lost their power; classic Central Place Theory, for example, was recognized as flawed for archaeological interpretations (Evans and Gould, 1982; Pumain, 1997:102). Butzer noted that in an era when others were avidly attempting to slot their data into Central Place Theory, Crumley had already introduced *regional heterarchy*, seeking “to assess archaeological settlement patterns without attempting to transform physical space or achieve geometrical regularity” and where “focusing on the properties of the solution rather than the deduced geometry promises to provide a more flexible and more general” central place theory” (Butzer, 1982:222). This problem prompted Crumley to comment

> These three concepts—region, scale and organizational structure—are in turn related to a fourth: perception. Clearly, it is the researcher’s perception of the importance of certain factors that determines a region and, similarly, the scale(s) at which it will be studied. Although it is less well recognized, it is also the perception of structure among elements that determines how they will be studied. (1979: 145)

Fixes to popular locational models were attempted with early computing (Renfrew, 1984; Irwin, 1983) but were limited until specialists developed advanced locational and spatial modeling software in the 1990s (Evans et al., 2012; Fotheringham and Oshan, 2016; Oshan, 2016; Siła-Nowicka et al., 2016).

Several well-known “aberrant” societies that displayed few indications of a highly centralized or autocratic elite—Teotihuacano, Chacoan, and Harappan—usually were explained away: since the normative centralized hierarchy *must* exist, archaeologists had simply not yet discovered the evidence (Charlton, 1969; Fairservis, 1977; Jacobson, 1979; Kurtz et al., 1987; LeBlanc, 1999; Lekson, 1999; Millon et al., 1965; Upham and Plog, 1986;

Wheeler, 1968; Wilcox, 1999). Crumley used Celtic-speaking cultures of the west European Iron Age as an example of decentralized organization, arguing that centralized autocracies would never be discovered there, as they didn't exist. Indeed, as more research on anomalous polities was undertaken, centralized autocracies did not emerge and the idea of differently organized societies gained ground, while normative models became less universally popular.

One of the main tenets of Heterarchy Theory is that however many heterarchic silos of agency a society creates (military, religious, judicial, artisanal, popular), each one is likely to be internally hierarchic and can incorporate both elites and common people. In 1995, when paradigmatic debates were raging and the year before Blanton et al. published Dual Processual Theory, Crumley noted the irony in the fact that archaeologists refused to imagine heterarchy as a way society could be organized, despite the preponderance of evidence:

> This conflation of hierarchy with order makes it difficult to imagine, much less recognize and study, patterns of relations that are complex but not hierarchical. It is ironic that the governmental structure we most prize (modern democracy) is the ideal representation of a power heterarchy. (1995:3)

In Dual-Processual Theory (often called corporate-network theory), Blanton et al. (1996) presented "A heuristically useful distinction… between two main types of power strategy, the exclusionary and the corporate, which coexist to some degree in the political dynamics of all social formations" (1996:2). Among the criteria they described as characterizing a "corporate" system was the idea of decentralized institutions where ordinary people expressed political power. Soon they were obliged to address critiques (e.g., Pauketat, 2001, 2007) that there were still normative assumptions about the direction of political development and that the theory had merely substituted "network" and "corporate" for the old neo-evolutionary categories of band, tribe, chiefdom and state. Blanton and Fargher then developed a supersessory theory to clarify the ways that governance practices and political ideologies articulate—the archaeological adaptation of Collective Action Theory (Blanton and Fargher, 2007, 2009; Fargher and Blanton, 2007).

Collective action theory states that the most stable and easily governed type of society is one in which people do not experience constant reminders of discontent, specifically through unfair and unpredictable taxation, the lack of any provision of tangible public goods and services that taxpayers expect in return for taxes and finally, the lack of any institutional venue in which and through which the public can communicate with government and in doing so, negotiate the terms under which they are governed. This last institution, hypothetical or real "voice," enables public participation in government through communication with rulers. Political bargaining is established through traditions or laws and relies on the existence of pathways for recourse should either side transgress what is acceptable.

Establishment of such a system is termed *bureaucratization;* it is expensive, both monetarily and in time and effort, but creates relations of rulership that are "easy" and once in place the most cost effective. Collective Action Theory predicts that governments with any basis—imperial, royal, republican, democratic or communistic, even a system based on inherited rulership or highly centralized oligarchy—can provide voice, public goods and fair taxation, if only through their non-obligatory provision by a benevolent dictator. Conversely, governments that do not invest in bureaucratization can expect difficult and expensive rule: the constant money pit of petty officials to manage unmanageable tax collection and enforcement, constabulary and military responses to unrest, institutions to try, sentence and punish transgressors and eventually the "exit" of taxpayers from the tax rolls, in one way or another. In other words, counter-intuitively, regimes that seem to be the most "powerful"—militarized, repressive, autocratic—are actually the weakest. Ironically, generations of archaeologists have identified regimes bristling with warriors and extracting high levels of labor or tribute as "powerful" when their fundamental organization likely contained the stressors that caused their dissolution.

The continuum effect

In their earlier Dual-Processual Theory, Blanton et al. outlined a continuum of organizational strategies, emphasizing that societies can and do shift between them over time—not just in one direction but back and forth. Collective Action Theory acknowledges that many societies openly provide little or no voice, public goods and have high, unfair or unpredictable systems of taxation and these societies form an important part of the theory, as they typically evoke a series of responses, including "exit." Exit strategies include withdrawal of cooperation, cloaking of economic actions and hiding of assets, physical concealment of settlements and retreat into remote regions, escape to external polities or stateless territories, protests, assassination, tax rebellions and civil war. Exit phenomena in historic cases like Scott's 2009 *The Art of Not Being Governed* have already been cited over 1,000 times by archaeologists. Blanton et al. (1996) pointed out a case of exit in prehistoric Mesoamerica: Rene Millon (1988:112, 1992:396), for example, proposes that Teotihuacan's rejection of glorified rulership emerged out of a tyranny so intense that "it provoked a reaction strong enough ultimately to lead to an abiding limitation on the power of the ruler" (1996:14).

Whether or not this occurred at Teotihuacan is still currently under investigation; it almost certainly happened in late European prehistory. Even without invoking the collapse of the Bronze Age's culture of extreme stratification in favor of the Iron Age's more corporate organization, one need only look at the historically described establishment of the Roman Republic in response to the early Iron Age's Tarquin kings and the initial reaction, even several hundred years later, to Julius Caesar's attempt to abrogate the corporate ideology.

Even in prehistoric cases, violent upheavals can sometimes be seen in destruction, abandonment and other phenomena, but the long, gradual buildup of resentment is less visible to archaeologists than the quick event: the burning of a palace or the smashing of a sacred precinct. The theoretical concepts of heterarchy and collective action can powerfully suggest a broad picture of likely social responses to non-bureaucratized governments and are especially helpful for interpreting the sometimes-subtle archaeological signs.

Finding voice: heterarchy and collective action in the archaeological record

Most archaeological studies of heterarchy involve detection of several institutions within a society, working both separately and cumulatively to order that society without privileging any single sector. In the Iron Age, these are typically a "warrior" or military hierarchy, a religious system often incorporating a judiciary and a public assembly and/or legislative political body. Other potential sectors comprise non-religious judiciaries, organizations of occupational groups or guilds, sodalities related to kinship-based landownership, usufruct or other rights. These institutions, although internally hierarchic, often have their own checks and balances. For example, in many Iron Age European traditions, a ruler fed and housed a war band, (Scandinavian *hird),* with whom vows of reciprocal obligation were exchanged—and if the ruler abused these obligations or tried to take too much power, the war band was sanctioned to abandon, depose or kill the overreaching party. For scholars of the Iron Age, the main pathways for discovering and assessing these components are textual records, place-names, sites and features, archaeological landscape organization and the use of theoretical perspectives that highlight, and thus point to, such forms of organization.

Textual sources

For regions within the former Roman Empire and its near neighbors, several critically examined textual sources offer important information—Julius Caesar, Tacitus, Polybius, Diodorus, Sallust, Hirtius, Strabo, Livy, Plutarch, Florus, and others. Decentralized political organization is mentioned in some of these works: descriptions of assemblies, assembly places and the need for "kings" to receive public support or permission for carrying out their projects.

The successor states that followed the Roman collapse incorporated many traditions introduced by Germanic incursions, giving many Late Antique societies a documented renewed assembly tradition that continued into the Middle Ages. In regions far outside former Roman areas, the assembly continued to be the forum for public voice, legal proceedings and negotiations between rulers and subjects.

Toponymic sources

Even when lacking textual sources, there are many preserved place-names that indicate ancient assembly sites. Studies abound for Scandinavia and for Anglo-Saxon England, but also Celtic-speaking Ireland, Scotland and regions of continental Europe, including Russia (Atkinson, 1983; Bamwell and Mostert, 2003; Norr and Sanmark, 2008; Pantos, 2004; Sanmark, 2009) and frequently, such assemblies continued into historic times. In Scandinavia, every nation has academic units and state archives specifically devoted to the scholarship on place-names, terrain-names and field-names—Stednavne, Stadnamn, Örnefnastofnun, and Paikannimen—interest foments collaboration between historians, historic and cultural geographers and archaeologists. This led to the establishment of NORNA, a pan-Scandinavian organization of all scholars who work in place-name studies.

Hear me now! Oratory as artifact of voice

The existence of a protohistoric record is not limited to place-names. Further evidence for the importance of public voice can be found in what is usually considered to be the Scandinavian literary legacy. The sagas and related materials as sources for historical facts or events have long been called into question, but even if the facts themselves are elusive and whether the events described are real or invented, the institutions that are highlighted would have been understood by the intended audience. "Voice," as a metaphor for voting, was the purpose of the assembly, but it also created a record of oratory tradition in Iron Age societies. As in classical Greece and Rome, which were both Iron Age societies oration and debate were learned skills, necessary for political and civic participation. Both the assembly tradition and the skillset needed for public oral arguments have left traces in the saga literary tradition—itself composed for oral recitation by professional court poet-historians. Often politicized, these do not always tell the historical "truth," but they reveal practices familiar to all who heard them. This chapter's title reflects their tradition of imperative speech, which is also a frequently used trope in current research on participatory engagement: an appeal or command, to adversaries (Balockaite, 2009; Bonner and Evans, 2004; Lafleur, 2013; Lee, 2013; Pittaway et al., 2009; Salkin, 2009; Vicary et al., 2006).

Anglo-Saxon and Scandinavian sagas of the first millennium CE used imperative idioms and rhetorical devices to foreshadow dire consequences of injustice or during performances of retribution, as part of public political speech in the assembly. In Beowulf, several challenges begin with *Hwæt!*, variously translated as “Hear me!” or “Mark my words!” (Crossley-Holland, 1999:80) or “Listen!” (Raffel, 1963:30). Contests of words or *flytings,* are frequent because they occurred in real life between people who had formal training in oration as a form of social and political discourse, “socially legitimated forms [that] seem to have been created for the verbal expression of adversativeness…an indigenous human urge toward ritualized combat” (Parks, 1986a:439). Some were ritualized exchanges of insults followed by an actual fight, while others were debates aimed at producing an argument more worthy than the opponent’s.

Verbal contests, in real life and in saga, almost always had an audience (Parks, 1986a:448, 1986b:294). In the *Atlamol* saga (Bellows, 1936) Guthrun engages in *flyting* with her husband, Attila the Hun, as she takes revenge for his breaking the sacred bond of the *hird* or warband, by cheating and murdering the men loyal to him, in this case her brothers. “Hear me now, Atli!—the first evil was thine; my mother didst thou take and for gold didst murder her, my sister’s daughter thou didst starve in a prison…good do I find it that grief to thee comes” (Bellows, 1936:519). She then taunts him for being ineffective at the assembly: “From the *thing* thou camst never…having won in thy quarrels or warriors smitten; full yielding thou wast, never firm was thy will, in silence didst suffer” (Bellows, 1936:534).

The wisdom of knowing when to listen and when to speak in public settings is emphatically repeated in these traditions, such as the *Hovamol*’s many instructional proverbs:

> The knowing guest who goes to the feast, in silent attention sits; with his ears he hears, with his eyes he watches, thus wary are wise men all… Shun not the mead but drink in measure; speak to the point or be still… the fool is agape when he comes to the feast, he stammers or else is still; but soon if he gets a drink is it seen what the mind of the man is like… To question and answer must all be ready, who wish to be known as wise…Wise shall he seem who well can question and also answer well.
> (Bellows, 1936:30–34)

Beowulf reflects this in *flyting* with an opponent before an audience of peers gathered in the king’s hall: *Hwæt!* “Listen, Unferth, my fuddled friend, brimful of beer, you blabber too much…” (Sullivan and Murphy, 2004:20), drawing attention to these most rankly amateur of political gaffs.

Elsewhere oral debates concern social behaviors or abstractions of morality or fairness. After Guthrun mocks Atli’s political skills, she recalls how she and her brothers killed tyrants and re-enfranchised those they had exiled, restoring their rights—contrasting despotism with traditional "fair" rulership (Bellows, 1936:533–534). Some debates occurred within a community, while others were over external conflicts—and sometimes "the boundaries of the community or communities are ambiguous" (Parks, 1986a:449) due to constantly shifting alliances that could rapidly change to include or exclude former enemies and friends. These motifs reflect the centrality of the assembly in real life, where candidates for kingship demonstrated their suitability, lawsuits were adjudicated, oaths were sworn and plans for war were debated, in public space where judgment from the community or a lawspeaker was the goal.

Archaeological indicators

Archaeological work has pointed to a somewhat different and more varied picture. The assembly institution is clearly very old and some exceptionally old and continuous "named" meeting places, marked by hills with standing stones, have been described and investigated (Brink, 2004; Larsson, 1997). Yet other scholars (Sanmark, 2004, 2009; Sanmark and Semple, 2008), have demonstrated that new locales were established in later times, specifically at times when rulers were attempting to delegitimize public power and recast the state as more centralized, forceful and controlling.

Eleventh century Sweden was undergoing both Christianization and legal changes aimed at increasing the autocracy of kings. Painstaking historical and archaeological work has demonstrated that for many locales, "The *thing* sites created in the eleventh century were presumably not the result of a royal decree, but were power statements in response to the growing central power" (Sanmark, 2009:233). Local sub-elites established new places for broad public meetings in defiance of changes affecting themselves and those ordinary local people for whom they acted as day-to-day leaders. "A few hundred years later the magnates had been replaced by royal officials (länsmän) who were required by law to hold thing meetings at the 'correct *thing* site' of the hundred" (Sanmark, 2009:234), providing a "hidden transcript" of unsanctioned, subversive meeting places.

A case study from the long Iron Age—the rise and fall and rise of voice

Participatory governance remained central in northern European societies in the first millennium CE. Tacitus, of course, gave the best-known account of this in *Germania,* describing how the leader of Germanic groups allied against the Romans was later killed by his own people for assuming and retaining more power that the collectivity had bequeathed him (Tacitus, 2008:94 [Annals 2:88]). When further texts emerge for the late eighth century and on, royal overreaches in Scandinavia were curtailed through dethronements and regicides by angry commoners or sub-elites—not to elevate their own fortunes but to eliminate perceived "nontraditional" rulers (Thurston, 2008, 2016).

The failure of participatory government occurs when over time and through structuration processes, elite power increases through creeping centralization. This can occur imperceptibly, so that citizens are unaware until it has progressed too far to easily controvert, or it can occur in brief, clear episodes of purge and replacement of public power with much more limited forms. It can also come sweeping in as the public mantle of a tyrant or autocrat on a tide of populism or nationalism.

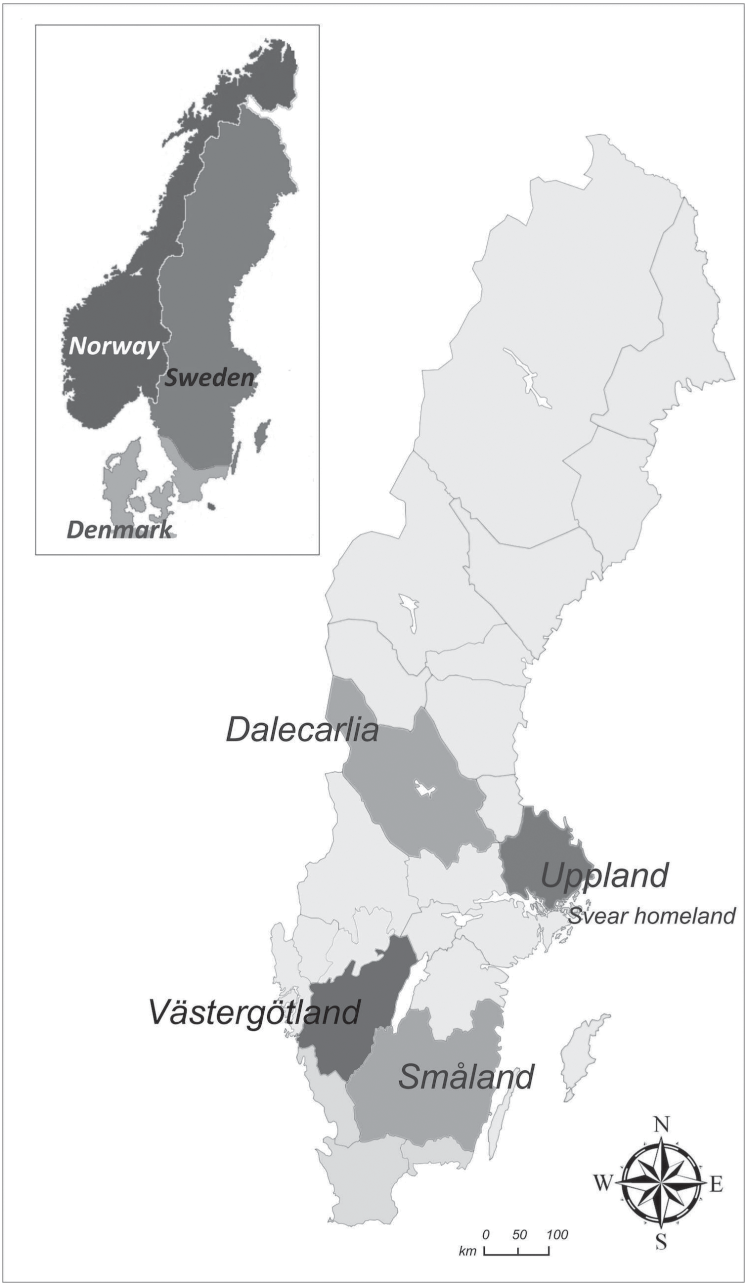
Throughout the centuries after 200 CE, Scandinavian elites sporadically attempted to erode traditional practices, while the public defended their rights in the face of attempts to institute alien, centralized forms of rule. In almost every historically documented case, those who suffered the loss of their rights and privileges fought back with every weapon predicted by Collective Action Theory.

Law codes in Scandinavia were memorized by multiple lawspeakers and transmitted orally to prevent manipulation or corruption. When rulers had them written down between 1000–1100 CE, changes were introduced, constructed with archaized language, aimed at deceiving the unwary (Brink, 2008:27; Mees, 2013). This was in turn thwarted with written, codified versions of the traditional contract between rulers and subjects, for example in the 1319 Charter of Liberties—the "Swedish Magna Carta" and in mid-fourteenth-century law codes noting that if no good candidate was found among a deceased ruler's kin, any man born in Sweden could contend and be elected king (Korpiola, 2014:103).

Over the course of the Swedish Late Iron Age and Medieval period (ending between 1523 and 1542), creeping and sudden sweeping processes were both at work. Early texts document actions taken by Swedish rulers and ultimately note the eruption of anti-state violence. What is less visible is the long, slower buildup of dissatisfaction with few public goods, erratic and rising taxation and loss of voice. These issues appear textually as indirect "hidden transcripts" within elite discourse, but they can also be seen archaeologically.

Historic traces

Around CE 1000–1100 the Svear kings of central Sweden came to rule a larger area incorporating many groups skeptical of, if not hostile to, the idea of an overarching rulership. For a couple of centuries, unification processes introduced nontraditional laws and changes in taxation that created unrest among the commons. The customary right to remove authoritarian anti-traditional rulers was still alive in the medieval era. Kings were still elected at public assemblies and it was traditional for those newly elected to take "honored" hostages while passing through some regions, to protect themselves from assassination by those who had not voted for them. In the 1120s,


Norway
Sweden
Denmark
Dalecarlia
Uppland
Svear homeland
Västergötland
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km

Figure 4.2 Regions of medieval Sweden mentioned in the text.

the newly elected Ragnvald "Knaphövde" ("round-head" or "the fool") passed through Västergötland, a region that had supported a different candidate. He failed to take hostages, indicating that he had no regard for tradition and did not fear the Västgötlanders or respect their votes against him—an insult as well as a transgression—and he was assassinated (Öhnell, 2012).

> Tiundi war Rangwaldær konongær. baldær oc huxstor. reð .a. karllæpitt at vgislædhu. oc fore þa sæwirðnigh han giorðhe allum wæstgötom. þa fek han skiæmðær döðhæ. styrðhi þa goðhær laghmaðþær. wæstrægötllandi. oc lanz höffhengiær. oc waru þa allir tryggir landi sinu.
>
> (Wiktorsson, 2011a:206)

> The tenth was king Ragnvald, bold and proud. He rode to Karleby without hostages and for the disrespect that he showed all the Västergötar, he suffered a shameful death. Then the good lawspeaker of Västergötland and chieftains ruled. And everyone in their country was safe.
>
> (Wiktorsson, 2011b:199)

The good lawspeaker and chieftains were local men; the authority of a king was not recognized in Västergötland for some generations.

After centuries of internal and external political turmoil in Scandinavia, the Kalmar Union was created, lasting from 1397 to 1523: a triple alliance that united Sweden with Norway and Denmark, overseen by the Danish monarchs, with Swedish regents ruling locally and during this era, new taxes and laws were added to the burden on the commons. This ended when a young nobleman, Gustav Vasa, riding a wave of long dissatisfaction with Danish rule, obtained the backing of the farmers of the Dalecarlian region in 1521. They raised a farmer army, enabling a general insurrection and with some backing from foreign allies, Sweden regained its autonomy.

Vasa, a noble who had no royal lineage, was elected king in 1523, founding a new dynasty insecure in its legitimacy, tipping him toward authoritarianism (Hallenberg, 2003:1). His tax abuses, anti-Catholicism and the imprisonment of popular locals caused the Dalecarlians who had enthroned him to rise against him three times beginning in 1525. To placate the wealthy and powerful farmer class, when Vasa created the Swedish national parliament in 1527, the farmers were given their own "estate" and representation. However, the same year, the church was dissolved, its assets seized and Protestantism was adopted to re-fund the treasury (Hallenberg, 2003:2) causing further rebellions. The Dalecarlians were defeated each time and the last uprising in 1531 was followed by widespread executions.

Another previously autonomous and long-dissatisfied province was Småland, where rule by Svear kings was never fully accepted. An upland where the combination of elevation and latitude render the climate and

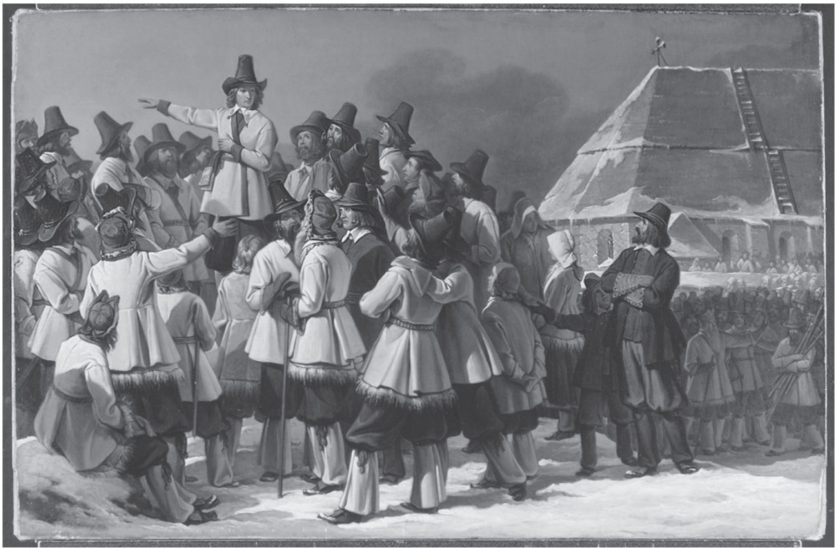

Figure 4.3 On the church steps in Mora, Gustav Eriksson (later King Gustav Vasa) recruits Dalecarlian farmers to his cause. Painted by J. G. Sandberg (1782–1854) in 1836. NM 2451, Sveriges Nationalmuseum, Stockholm.

temperatures like those above the Arctic Circle, the land is rugged: rocky, boulder-strewn with thin moraine soils, extensive swamps and dense, continuous forests. Within narrow parameters, a type of pastoral farming life was possible there, but normally only in periods when the climate allowed: the uplands saw outmigration of most or all of the population over the course of minor and major climate minimums in the Neolithic, Bronze and earliest Iron Ages.

Even in the best of times, archaeological assemblages show that herding was combined with a variety of other subsistence and/or income-producing efforts, especially reliant on longtime trade routes that brought cattle and other products, untaxed, through the forests into Denmark's large marketplaces and beyond into Europe. Between 1100 and 1200, the Swedish kings took up residence in Småland, the state established new, non-locally controlled strongholds and towns there and began imposing taxes and laws. During Vasa's rule, breakup of the Kalmar Union placed Småland's farmers right on the border with the enemy, Denmark. Impacted by the same issues as the Dalecarlians, they also suffered renewed bans on cross-border trade and the ravages of almost constant foreign wars that fueled local conscription and war-taxes extracted from the local farming class and left a landscape of burned villages in its wake. When wars raged between Sweden and Denmark before the Kalmar Union, the Småland and Danish farmers made their first private treaties or *bondefred,* to illegally continue their invisible forest trade (Kokkonen, 2012; Venge, 1980).

Archaeological indicators of pioneering, concealment and tax evasion point towards a long buildup before an outbreak of organized warfare against the state. With each state incursion came further colonization into the uplands (Thurston, 2015, 2016). Unlike earlier eras of climate decline, even the beginning of Little Ice Age and the Black Death failed to completely stop people from expanding into the higher and higher regions, with worsening livelihood opportunities, so that by the end of the Medieval era in the mid-1500s, one can see a distinct "Iron Age" landscape in the lower parts of the upland and a Medieval landscape established in the highest. Although texts record rampant tax evasion, the archaeology of the hidden farms in the uppermost reaches of the plateau shows a variety of industrial production activities and the material culture of a modestly prosperous lifestyle with connections far beyond the upland (Franzén, 2005, 2013a, 2013b; Thurston, 2015). This can largely be attributed to transgressive treaties and the unsurveilled illegal trade they imply, as well as opportunistic use of the state-established marketplaces where the forest farmers could also enter legal/taxable local economies.

The rebellion of Småland was the era's most serious threat to the Crown (Hellström, 1999; Larsson, 1987). In 1540, untenable new systems of taxation arrived along with corrupt and brutal tax collectors (Hallenberg, 2012:564–565). Under a farmer-general, Niels Dacke, infamous for his previous killing tax of collectors in the uplands, the Smålanders succeeded in defeating the royal mercenary army and gained brief independence during which Dacke reduced taxes and restored the church and old laws.

For a short time, Vasa recognized Dacke as the ruler of Småland. In 1542, Vasa broke their treaty and defeated Dacke, who died of his wounds on the border. His head was displayed around Sweden as a warning and his family was outlawed and executed soon after.

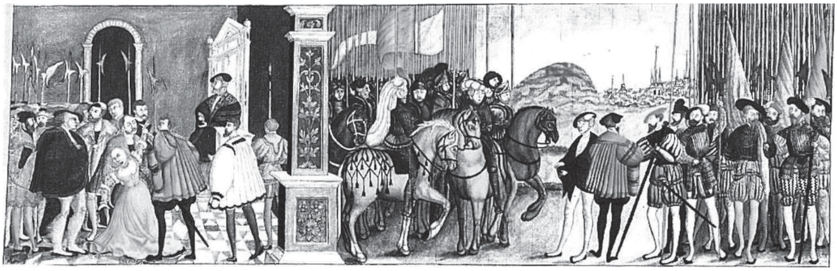

Figure 4.4 Gustav Vasa prepares for his war with Nils Dacke. 1722 copy of now-lost 1540s commemorative works depicting the "triumphs" of Vasa. Kungliga Biblioteket, Stockholm.

However, it is not the end of the sequence when a government deconstructs collective action by abrogating its institutions; in fact, Collective Action Theory predicts a continuum of responses: actions of protest from below and of strategic reconciliation from above. Not only did Dacke's rebellion challenge the state—it also resulted in an increase in commoner power. To calm dissent, Vasa, a product of an overwhelmingly corporate society, limited execution to "king" Dacke and his kin, apologized for administrative brutality, which he blamed on corrupt officials who were replaced with "better men" (Hallenberg, 2012:564). He then created a special parliamentary venue for commoners to communicate directly with him—as they had done in "olden days." Thus he acknowledged heterarchy as precedent and made a show of restoring curtailed voice and fair taxation. In the aftermath, he enlisted many former rebels into state service (Hallenberg, 2012).

The trade-off for this restoration of rights was a future of high taxation and micromanagement by royal officials. Over time, legal venues for the farmer's voice were sometimes lessened, sometimes increased, but never eliminated and the awareness that they could challenge central authority was not forgotten. This tension continued and with the exception of the authoritarian late eighteenth and early nineteenth centuries—another instantiation of this long-term antagonism—led eventually to Sweden's early twentieth century socialized democracy (Rojas, 2005).

The trajectory of political organization is not a one way ticket to centralized hierarchies: it is a constant tug-of-war, actively strategized by all sides and often producing unanticipated consequences. The maintenance of participatory government needs constant vigilance to ensure its continuity. The greatest mistake the commons could have made was to become complacent in the ancient nature of their system, expecting that rulers would respect the legitimacy of deep time as much as the farmer relied on it.

But still…why?

If so much data points to voice and assembly as political institutions during the Long Iron Age, why did the notion of an elite-dominated, hierarchical and despotic Iron Age become ingrained? One explanation lies in how modern, western people conceptualize power in the ancient world (Thurston, 2010). Another reason lies in academic and intellectual traditions promulgated by nineteenth-century scholars like Mommsen and his *Roman History,* a work so admired for its lively journalistic style that he received the only Nobel Prize ever awarded to a non-fiction, historical work. He dominated European politics as a member of the German legislature and was famous in England and America for his defense of the Jews amid rising anti-Semitism.

This has obscured some of his other views, which were often murkier. His championing of the Jews was accompanied by a conviction that they should happily accept forced assimilation, as he himself had done as a child growing up in Danish Schleswig-Holstein:

> The people of Schleswig Holstein, of Hanover and of other states which have been absorbed into Prussia, have voluntarily given up many of their special customs; and Mommsen suggests that the Jews, following this example, should do well to abandon some of the outward characteristics by which they have hitherto insisted on marking themselves off from their German neighbors.
>
> (Anon., New York Times, January 8, 1881:3)

This begs the question of how he viewed the conquest and incorporation of “barbarian” cultures into Rome. In the 1930s context of National Socialism, historian and cultural critic Egon Freidell evoked Mommsen’s Roman history as rife with problems. He had unabashedly cast “Cato as a conservative of the Crimean Party, Cicero as parliamentarian á la Thiers, Crassus as a Bourse king á la Louis Philip, the Gracchi as socialist leaders, the Graeculi as Parisian gypsies and the Gauls as Indians,” creating a “complete ‘reversal of facts’ to cater to the public taste” (Friedell, 2009 [1935]:808). A number of paradoxes seem apparent. He revered a pre-Roman society where kings were elected, in his view by an upper class electorate. Once elected, he was convinced that kings then formed a benevolent dictatorship with absolute power and no checks or balances. At the same time he admired Caesar as Rome’s only true genius and scorned the last Republicans as fools incapable of adapting a Republican government to an empire.

Among these beliefs, he had a dim view of “barbarians.” Writing to the *Vienna Neue Freie Presse* on October 31, 1897, he called the Czechs “apostles of barbarism” who would swamp German cultural achievements in “the abyss of their Unkultur” (Agnew, 2013:149). The German response, he noted, had to be tough, because “the Czech skull is impervious to reason, but it is susceptible to blows” (Agnew, 2013:149). The idea of “unkultur” is reminiscent of his views on the Gauls in Roman contexts—more than reminiscent.

Because of Mommsen’s overwhelming fame, bolstered by like-minded scholars over the next century, his views became canon: the Roman nobles had invented and monopolized the various assemblies of the early Roman state, which evolved into the senate and other Republican bodies. This view promoted the notion that democracy was a concept emanating from the aristocracy and received as instruction by intellectually superior Italian plebeians, while the primitive Britons, Gauls, Germans and others could only understand indigenous leadership by heavy-handed kings or chiefs.

To construct this version of the past took both will and effort even at the turn of the last century. At the time, critics wrote “that to bolster up a preconceived patrician populus modern writers of great authority have either misused or ignored many facts” (Magoffin, 1911:119–120). Despite the well-received work of scholars like Botsford, Mommsen’s views took root. Sadly, *contra* the majority of most contemporary Iron Age archaeologists, in books that will see publication well into the future, a few well-known authors continued to reinforce the idea that Romans "taught" the Gauls, Britons, Germans and others to understand participatory government and organize themselves as a heterarchy (e.g., Cunliffe, 1997:231–232).

It is now understood that across western Eurasia (and beyond) many peoples shared a political construct of power that was spread across social groups and maintained through a negotiated tension between leaders and ordinary people. In Rome, the process of weakening it from within was most successful, resulting in an Imperium. If one wished to argue that collective or democratic leanings are preferable to autocracy or tyranny, we should view the meeting between the Romans and their neighbors as a meeting between a rapidly diminishing heterarchy and a still-functioning tradition among the various "barbarians."

In conclusion, "voice" might be the most critical of the institutions addressed by both Heterarchy Theory and Collective Action Theory. Some societies bestow voice as real public power, while some operate on a mere impression and in yet others the illusion of voice can be an effective instrument for complacent oppression (Feinman et al., 2000:452–453; Thurston, 2016:184). Yet it is the outright banning or restriction of voice that propels public resistance: when a dictator fails to compromise and control a legislature, it is the prorogation, dissolution or abolishment of the parliamentary system that triggers *coups d'etat* and revolutionary uprisings.

At the time of writing, such sequences have recently been enacted in a number of states across the globe; as in the past, so too the probable case in any given future. While many reach back only to the birth of modernity for models of public power and dissent in the current age, the long-term cycles of tension and pathways of power are better revealed in the light of archaeological perspectives.

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Part II

Identifying resilience

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5 Reconstructing African landscape Historical Ecologies

An integrative approach for managing biocultural heritage

Anneli Ekblom, Paul Lane and Paul Sinclair

In the current context of rapidly accelerating global climate change and demographic growth, national and international conflicts over water and terrestrial resources are likely to intensify, particularly in regions of high variability and water scarcity (Rockström et al., 2014). Both southern and eastern Africa experience high variability in rainfall and climate projections predict that with climate change, the number of extreme weather events and overall unpredictability will increase (Engelbrecht et al., 2013), at the same time biodiversity is decreasing and spaces for wildlife are becoming increasingly confined. With growing investments in conservation areas, irrigation agriculture and infrastructure, competition for land and resources is growing. Large areas of the continent are appropriated either as part of the food security strategies of various non-African nation states, or by foreign companies investing in carbon trading and other "green" businesses (see Fairhead et al., 2012; Cotula, 2013; Leach and Scoones, 2015). Competition and few alternatives, create discontent and gaps between Conservation goals and Livelihood goals. For example, established National Parks in Africa have a legacy of evicting local residents (Neumann, 2002). Though there is a new philosophy in conservation, protection by exclusion is still favored over protection through use and community based management (Brockington, 2002). Historical Ecology (e.g. Crumley, 1994, 2007); has an important role to play here for many reasons. Firstly, historically informed understanding of landscape dynamics allows us to better understand the interaction of diverse patterns and processes on various scales making it crucial for landscape management. Secondly, long-term understanding of landscapes challenges "wilderness ideals," and opens up opportunities for co-management and collaboration. Thirdly, interest in the Historical Ecology of local practices and knowledge creates space for discussions about heritage, memory, identity, values and sense of place.

In this chapter we summarize three case-study approaches to landscape and networks through Historical Ecology. Our first two cases will focus on Great Zimbabwe and Limpopo National Park respectively, discussing the Historical Ecology of place and landscape in relation to heritage and

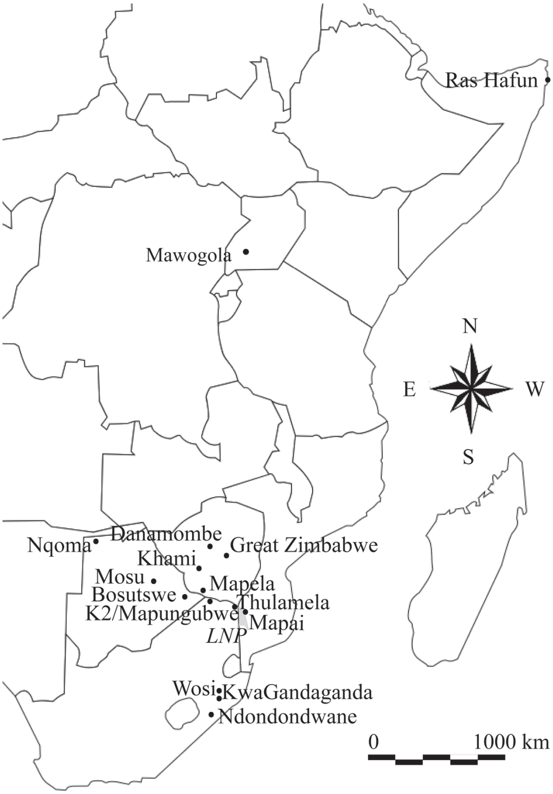
Ras Hafun
Mawogola
N
E
W
S
Nqoma
Danamombe
Great Zimbabwe
Khami
Mosu
Mapela
Bosutswe
Thulamela
K2/Mapungubwe
Mapai
LNP
Wosi
KwaGandaganda
Ndondondwane
0
1000 km

Figure 5.1 Map showing sites and localities discussed in the text (authors).

conservation. Our third case will explore similar issues but follow the network of a particular resource, ivory, in southern and eastern Africa. Combined, the examples show how knowledge of long-term landscape history and interaction with megafauna can inform present day strategies for enhancing nature conservation and livelihood security.

Great Zimbabwe hinterland

Since the 1980s, Great Zimbabwe has been the locus of intensive excavations and surveys focusing on soils, vegetation, hydrology and settlement patterns (Sinclair, 1987, 2010). Although researchers have concentrated mostly on the archaeological material and architecture there is now an increasing body of knowledge concerning the environmental, demographic and political entanglements of Great Zimbabwe (Huffman, 2008, 2009; Chirikure et al., 2014, 2016, 2017, 2018). Mapping soils and hydrology has provided

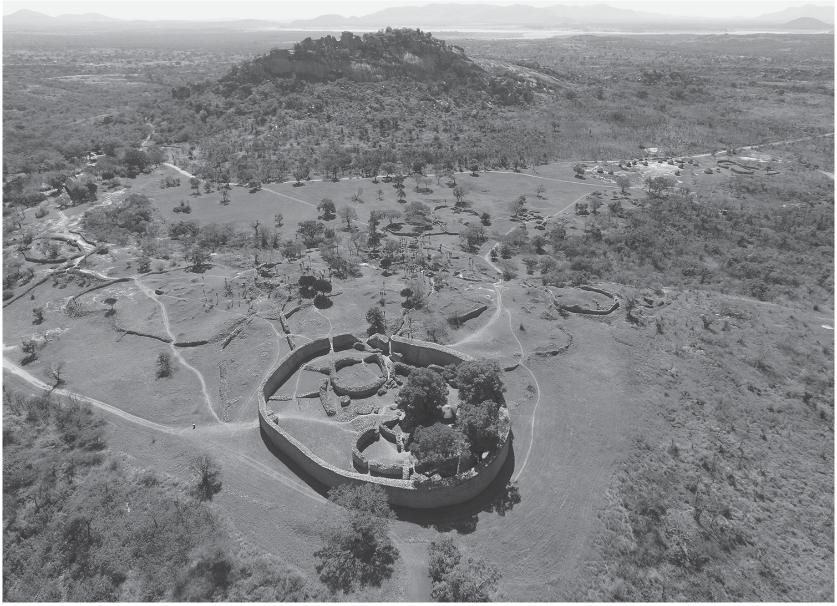

Figure 5.2 Overview of the Great Zimbabwe site, showing the elliptical building (forefront), the acropolis (on the elevated hill), and other stone built wall ruins, together with present day vegetation structure (Photo credit Daniel Löwenborg, with permission).

a better understanding of resource use and spatial patterns (see summaries in Pikirayi et al., 2016; Pikirayi, 2018; Sulas and Musindo, in press). Below, we briefly review existing knowledge of Great Zimbabwe and its landscape and then discuss how the Historical Ecology of Great Zimbabwe is relevant to heritage conservation today.

Settlement trajectories and resource use

Correlations between climate, vegetation, hydrology and settlement patterns, in and around the Great Zimbabwe zone of influence, were tested by Sinclair (2010). Settlement preferences were similar in the Late Stone Age (LSA) and Early Farming Community (EFC, from AD/BC 0) periods. Although domesticated cereals appear with establishment of the EFC, there was a continued reliance on wild grasses (Jonsson, 1998:105–106) and wild fauna continued to be important as resources, together with sheep/goat and cattle (Thorp, 1995; Plug, 2000; Manyanga, 2007). At the turn of the second millennium AD, Later Farming Communities (LFC) emerge with a clustering of settlements, attributed to shifting trajectories of power that can be seen in the developments of the settlements of Schroda (ca. 900–1000 AD), K2 (ca. 1000–1200 AD), Mapela and Mapungubwe in the Limpopo Valley (Huffman, 2008; Chirikure et al., 2014). Long-distance trade goods and glass beads (present at least from the seventh century AD) show that social networks reached across the region, from the coast to the interior (Wood, 2012; Mofett and Chirikure, 2016). Clusters of settlements, about 50 km in area, are concentrated around stone-walled prestige settlements (Sinclair and Lundmark, 1984; Sinclair, 1987, 2010), such as Great Zimbabwe (1085–1450 AD), Khami (1450–1650 AD) and Danamombe (1600–1700 AD) and also other settlements across the region including in Mozambique, Botswana and south of the Limpopo Valley (see below).

The geographical trajectories of power created a spatial network that can best be described as polycentric. Larger polities were formed as amalgamations of smaller entities under a dynastic ruler through consolidation and expansion. The large polities often broke down internally, while smaller entities shifted alliances even though, in many cases, ethnic identities remained relatively stable (Beach, 1994; Chirikure et al., 2018). As a regional capital, Great Zimbabwe had longer longevity (c. 250 years) than either earlier or later polities, despite being situated in an area with variable rainfall. With an estimated population of about 10,000 inhabitants during its peak (Chirikure et al., 2017), its environmental footprint must have been decisive. It is possible that through social, political and economic alliances, local pressure on resources and land could be distributed over a wide geographical region. Mtetwa (2018) has shown how intensive iron production took place in the Zimbabwe hinterland, although much of this iron production was seemingly independent and produced both in domestic and industrial contexts (see also, Bandama et al., 2016). Based on the available written sources, Mudenge (1988:162) has suggested that cattle could be kept at a distance of 150 km away from the political centers in the care of the wives of lower-ranking chiefs. Sinclair (1987) has proposed the presence of cattle camps within a radius of 25–50 km around Great Zimbabwe, and Garlake has also suggested a system of transhumance (Garlake, 1978; see below). Unfortunately we are still missing detailed pollen and related vegetation records from the region to understand long-term landscape dynamics better, but wood charcoal analyses from Great Zimbabwe contexts suggest a similar vegetation as today (Chikumbirike, 2014).

Landscape management

For a long time, researchers have speculated that resource depletion in and around Great Zimbabwe led to its decline (see reviews in Pikirayi, 2003, 2006; Hannaford and Nash, 2016). In the late nineteenth and early twentieth centuries, the vegetation around the site was open and it was suggested that this was due to degradation by nineteenth- and twentieth-century residents (Bannerman, 1982; see Chikumbirike, 2014, for a review). However, previous attempts to understand the vegetation history of the immediate surroundings of Great Zimbabwe have not adequately factored in vegetation changes that are known to have happened after 1900 (Ndoro, 2001:83). The decision to regenerate vegetation in the present day may also be misinformed, as Great Zimbabwe is likely to have had an open landscape at the height of its occupation and the possible impact of planned "habitat restoration" on the existing biodiversity has not been assessed. Rather, continued use by local communities may be key to maintaining an open landscape. The exclusion of local communities from the monument in the twentieth century was informed both by the idea of degradation but also the persistent but erroneous claims that Great Zimbabwe was built by foreign hands. In the late twentieth century, as it became the symbol of the new nation Zimbabwe and Shona nationalism, local residents continued to be excluded from the monument (Ndoro, 2001; Fontein, 2006). Several communities claim ancestral ties to Great Zimbabwe sites and other stone enclosure sites (Lindahl and Matenga, 2018). There has been a strong tradition of custodianship, that in many cases acts as a very efficient and locally organized means of heritage protection (Jopela and Fredriksen, 2015; Lindahl and Matenga, 2018) and new management strategies informed by local environmental philosophies and cultural practices are beginning to emerge (Sinamai, 2018).

Lower Limpopo valley

The hot, semi-dry lowland savanna landscape of Limpopo National Park (LNP), was proclaimed in 2002 as part of the Greater Limpopo Transfrontier Park, joining Kruger National Park (KNP) in South Africa (created in the 1920s) and the Gonarezhou National Park in Zimbabwe (Wolmer, 2003). We have combined archaeological surveys, paleoecology, local history, livelihood surveys and written sources to understand the resilience and adaptabilities in the landscape.

Adaptabilities

Societies in and around the Limpopo Valley demonstrate an overall adaptability to climate variability (see also Manyanga, 2018). The earliest evidence of farming (cereal grain and cattle) in the lower Limpopo Valley dates back to the first century AD (Plug, 2000; Manyanga, 2018). Elite settlements, with stone enclosures, and prestige burials are found close to the border between South Africa, Mozambique and Zimbabwe (Huffman, 2009; Manyanga, 2007, 2018). Thulamela dates to 1250 AD and may have housed 3000 inhabitants (Steyn et al., 1998). A pollen record from a nearby oxbow lake (Mapimbi) (Gillson and Ekblom, 2009), situated c. 1 km from Thulamela, suggests that at the same time that Thulamela was abandoned around 1650 AD, farming was expanding in the area on a large scale (Ekblom et al., 2011). The region was experiencing the effects of the Little Ice Age with prolonged droughts (Tyson et al., 2002; Holmgren et al., 2003;

Scott and Lee-Thorp, 2005; Ekblom et al., 2012; Woodborne et al., 2016). In other contexts, cultivation of maize has been explained as a response to drought crises, as maize can be planted over the year and also eaten green (Crais, 2003). However, maize is also easier to transport, handle and store than indigenous cultigens and its cultivation could have expanded to meet demands from trade networks (Ekblom et al., 2011). Farmers would also locate fields in different areas and grow different crops on them, a practice that is still maintained today.

Social networks can also function as a facet of adaptability. For example, in an early eighteenth-century source, Mahoemane (in Liesegang, 1977) describes the trade routes that went across the "thirstlands" of the lowlands, with resting stations organized between them. Hunter-gatherer communities may have played a crucial role here, with their expert knowledge of water points (replenished by a complex hydrology) and animal movements (see similar discussion in Forssman, 2014). Elton (1873:20–21) described what he defined as "hunter-gatherer" communities that were occasionally planting cereals and intermarried with settled villagers. From the nineteenth century, migrating for labor became another adaptability both in times of crises (First, 1983:28) and also to build up funds for paying bridewealth. Finally, in these landscapes, livestock were and still are a crucial asset for mitigating vulnerability. Local cattle breeds are resistant to disease and periodic droughts (Regé and Tawah, 1999). Archival records from nineteenth- to twentieth-century Zimbabwe suggest that there was a thriving internal African market of cattle sales (Steele, 1981) and sale of cattle and other livestock is still the preferred solution in times of scarcity (Milgroom, 2012).

Landscape management and heritage

Pollen and diatom analyses have been carried out in KNP and LNP and the long-term records allow us to assess the effect and variable rates and longevity of change (see summary in Ekblom et al., 2017). Park management officials have been very keen on the potential of long-term records for addressing issues of concern for adaptive management and to define acceptable limits of change (Venter et al., 2003). Using charcoal, diatoms, pollen, spores and isotopes we are able to address questions relating to grazing and fire frequency and its interaction with climate variability, a strategy that is now being extended to the Serengeti, Tanzania, under the auspices of the Adaptation and Resilience to Climate Change (ARCC) project.[1]

As LNP was proclaimed a park, seven villages, with a total of 7500 inhabitants living in the main wildlife zone, became part of a resettlement program, a process which has been highly contentious for all involved (see Witter, 2010; Milgroom, 2012 for a review). Local discourses on past and present resettlements refer to identity, heritage and authority (Harries, 1987; Lunstrum, 2010; Witter 2010; Meskell, 2011; Milgroom, 2012). There were calls both from within concerned communities and also from the outside,

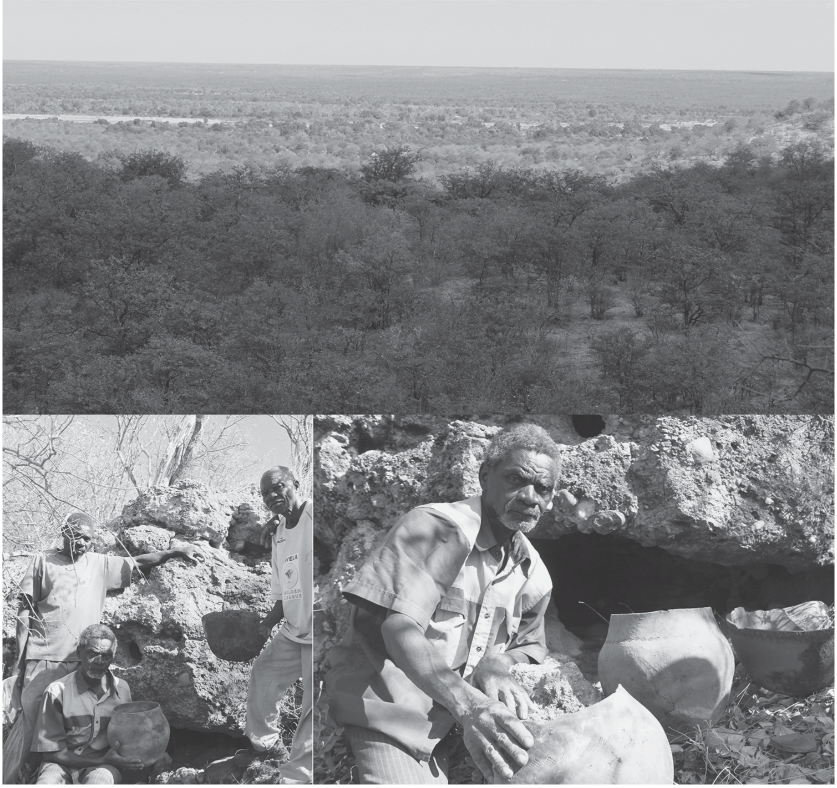

Figure 5.3 Visit with community members at a rockshelter heritage site and old ceremonial place outside of Musamani village on the eastern side of Limpopo River (seen as a stretch of sand in the image). Top picture: Overview from the rockshelter of the Limpopo River floodplain with LNP seen west of the Limpopo River. Below pictures: the rockshelter with community representatives and a detail of material remains in the rock shelter (Photo credit: Michel Notelid, with permission).

to document village and landscape histories (Lunstrum, 2010; Milgroom, 2012:193).

Over a period of several years, interviews and field walks were carried out in the villages affected by the resettlement program. Local histories stress independence and fluid ethnicities and alliances. The loss of authority of traditional leaders and by extension also of the ancestors, is a major concern among local communities. For this reason, traditional leaders and community members are keen to document places, lineage names and history to safeguard ancestral authority and ownership and it is important that the park ensures continued access and ownership of heritage places (Ekblom et al., 2017).

Elephant ivory trade over the *longue durée*

Ivory has long been an important export commodity for certain eastern and southern African societies (Lane, 2010). In eastern Africa, a key early written source, the *Periplus of the Erythrean Sea*, attests to the export of ivory from a series of ports and landing stages along the Red Sea coast south of Berenice to Ras Hafun, in the first to second centuries AD (Casson, 1989:17) and from several trading centers on the East African coast. This trade in ivory and other natural products from the interior was part of a wider circulation of goods linking the Mediterranean world with Egypt, the Red Sea, Persian Gulf and Indian Ocean communities. Finds of ivory objects from early first millennium AD contexts at several coastal sites in these regions may attest to such trade, although ivory from the Indian sub-continent was also in circulation (Mouton and Cuny, 2012:181).

Perhaps because of this export demand, concentrations of ivory are scarce in most eastern African archaeological contexts, with the principal exception being at Aksum. Here, historical sources and archaeological evidence for the local working of ivory indicate that the Aksumite kingdom was a major supplier of ivory to the Mediterranean world from the third century AD up to the second quarter of the seventh century AD. However, Aksum's dominance declined once its access to maritime routes to the north were curtailed following establishment of Arab control over the Red Sea (Phillipson, 2012:196, 210). Around the same time, historical sources suggest that there was an increased demand for ivory in India and China resulting in a redirection of trade possibly toward southern Africa.

Evidence from the EFC sites of KwaGandaganda, Ndondondwane and Wosi, in what is now KwaZulu-Natal Province, South Africa, for example, attests to extensive local working of elephant ivory between the seventh and tenth century AD. Isotopic and ZooMS analyses suggest that different communities, even ones in geographical proximity to one another, were exploiting different elephant populations to source their own ivory supply (Coutu et al., 2016). Archaeological finds of ivory, in both worked and raw forms have also been documented elsewhere in the region, including Nqoma, Bosutswe and Mosu I in Botswana (Reid and Segobye, 2000) and various locations in northern Zambia and in the Shashe-Limpopo basin (Plug, 2000; Hanisch, 2002). The latter include, most notably, the early capitals at Schroda and nearby K2 mentioned in the context of Great Zimbabwe above. Combined, this evidence suggests that elephant ivory was likely one of the main items used in exchange to obtain trade items as discussed above. Several early Arabic and Chinese sources, including a tenth-century account by al-Mas'udi, also stress the importance of African elephant ivory as a trade good, along with gold and leopard skins, especially from the Sofala region in present-day northern Mozambique (Freeman-Grenville, 1962:14–16; Ricks, 1970).

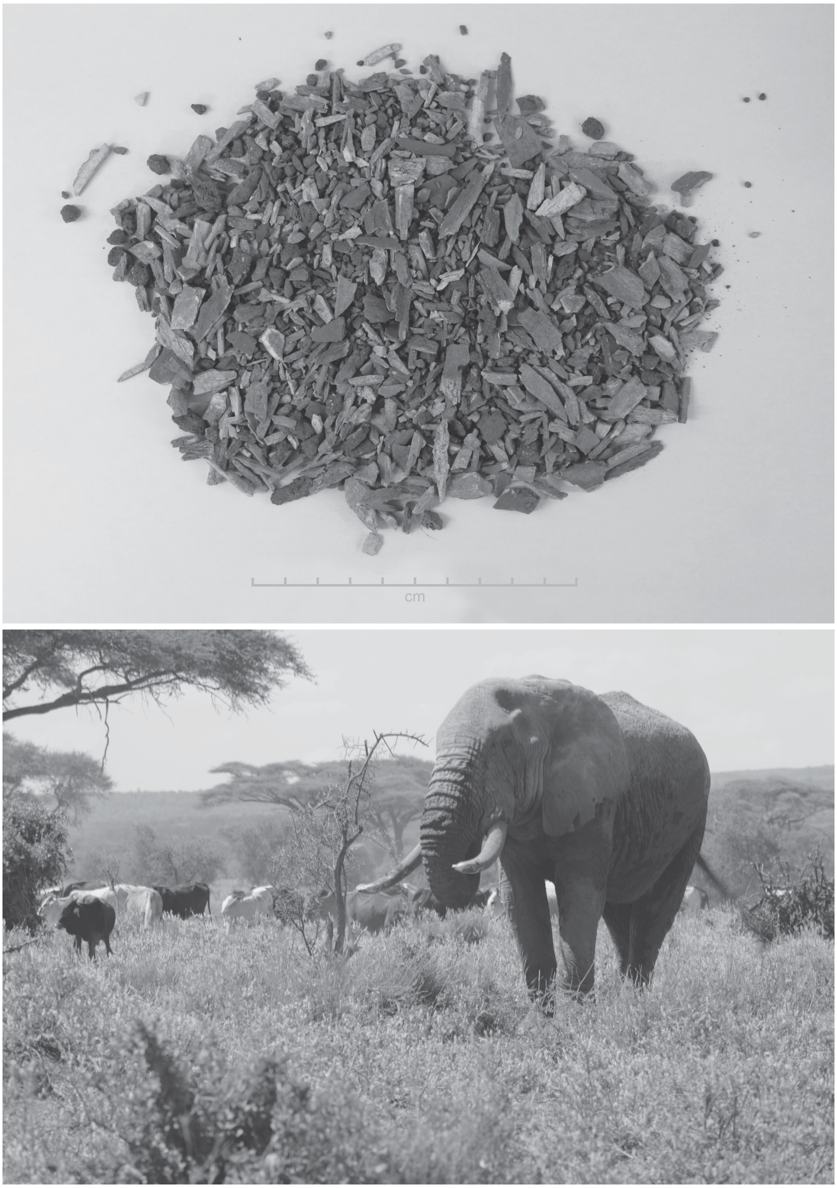

Figure 5.4 African Elephants are major ecological architects and as demand for their ivory intensified their removal from particular landscapes would have triggered distinctive ecological changes. a) Ivory working waste from KwaGandaganda, Square 22, midden, Level 2 (Photo credit: Ashley Coutu, with permission). b) Lone bull elephant co-existing with domestic livestock, Amboseli, Kenya, 2017 (Photo credit: Rob Marchant, with permission).

Ecological consequences and environmental narratives

Elephants are widely regarded to be a keystone species and major "ecological architects," and their large-scale removal during the height of the nineteenth century boom in demand for African elephant ivory is widely regarded as having had significant ecological impact (Spinage, 1973; Thorbahn, 1979). When present in large numbers they help sustain open bushland and mixed scrub savannah habitats. Once elephants are removed from a landscape their absence also brings about an increase in the woody component (Kerley et al., 2008). Various scholars have also argued that habitat changes induced by elephants would have offered a number of opportunities to local communities (see Håkansson, 2004, 2007 for reviews). For instance, the opening up of former wooded areas may have resulted in a reduction in the prevalence of tse-tse fly and related levels of endemism of sleeping sickness (Kjekshus, 1996), allowing for an expansion of cattle-keeping. Equally, habitat changes may have had more detrimental consequences for local, non-farming populations that relied on access to wooded areas for their subsistence. The expansion of the ivory trade itself, and the economic opportunities it offered, also brought with it various costs and benefits that affected different societies and individuals in diverse ways.

Extrapolating from a combination of modern elephant data and archaeological material, it is clear that some areas, such as the Greater Mapungubwe Landscape, were well suited to combining crop cultivation and livestock herding alongside ivory extraction and the exploitation of other wildlife resources (Forssman, 2014; Forssman et al., 2014). It is possible, as has been argued recently with respect to precolonial human-elephant relationships in Mawogola, south-western Uganda (Reid, 2015), that the offtake from southern African herds from the late first millennium to mid-second millennium AD was sustainable and contributed to the general health of the local environment. However, the scale of extraction and the possible ecological impacts of this activity remain unknown and much more integrated research on the Historical Ecology of this landscape and of southern Africa's elephant populations is needed before applied uses of archaeological knowledge can be formulated. At this stage, we simply note that knowledge concerning the dynamics of the landscape co-habitation by people and megafauna certainly has the potential to inform contemporary strategies aimed at reducing human-elephant conflicts in what is now a transboundary area, especially as contrasting legal frameworks continue to pose a series of challenges for effective wildlife management (Selier et al., 2016). Maximizing the potential benefits, for both species, of such a long-term perspective on changing human-elephant relations will require much closer integration of archaeology, paleoecology and conservation science than exists at present, however.

Concluding discussion

African ecosystems have been shaped over millennia by diverse interactions between changing climatic conditions, biophysical variables (such as soil, vegetation and fauna) and ever-increasing human interventions. These "heritage natures" in which humans and nature have been intimately entangled for centuries, perhaps even millennia, both co-producing the other, are now under pressure from rapid population growth and the associated resource needs this has created. Projected climatic and atmospheric change will have significant consequences for human-ecosystem relationships thereby posing new challenges for their management and sustainable development. Governance, land tenure and economic conditions may also change, further complicating the task of ecosystem management. As outlined here, recent research has suggested that understandings of past human–ecosystem–environment interactions, and how these evolved, can be of central importance to planning and designing more resilient societies and sustainable food production systems (Marchant and Lane, 2014; Gillson, 2015). Critically, the long history and extent of such interactions suggest that few places, if any, in Africa can be thought of as truly "pristine." Most African ecosystems thus need to be understood as "constructed" or "domesticated" landscapes in which nature is as much part of the human sphere as humans are of nature, as has been shown above. Adopting an Historical Ecology perspective also helps complicate the notion of human environmental *impacts* by acknowledging the possibility that disturbance caused by human activities has often played a key role in enhancing the diversity and complexity of specific ecosystems. Sacred groves, which are found widely distributed across the African continent are an excellent example of this (e.g. von Hellermann, 2016) and are now increasingly acknowledged as biodiversity "hotspots" precisely because of their active management as important socio-cultural and religious spaces (Sheridan and Nyamweru, 2008); i.e., as places of biocultural heritage.

While it is important, as we have shown above, to consider rural contexts and the value of African farming and herding heritage, more of Africa's population now live in urban settings. Accordingly, the legacies of urbanism, the transformations in urban dwelling, how these relate to shifting concepts of urbanity and the sustainability of Africa's towns and cities, are all issues that require critical consideration. As Sinclair and colleagues (2016) have highlighted, globally there have been massive losses of social-ecological memory amongst urban dwellers. Consequently, the diversity of knowledges about food production and water management, knowledges needed for urban systems to accommodate any future disturbances and to reorganize food systems, have eroded. Also, the continuing growth of cities and the stimulus this will give to the extraction industries, will inevitably pose increased pressures on heritage resources management.

In summary, we firmly believe that the promotion of sustainable development and the creation of resilient societies should be grounded in a detailed understanding of past human-environment relations and their consequences, both intended and otherwise, as they have developed over the course of centuries and even millennia. Secondly, we argue that the false binary between cultural heritage and natural heritage and the different management regimes associated with these, need to be abandoned and replaced by new approaches to the protection, management and celebration of *biocultural* heritage developed in consultation with all relevant stakeholders, including local communities.

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Note

1 www.real-project.eu/sida-funded-adaptation-resilience-to-climate-change-project/.

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6 Resilience of agrarian land use practices in Burgundy, France

Evolving approaches to Historical Ecology

Seth Murray, Elizabeth Anne Jones and Scott Madry

An essential tenet of Historical Ecology is the idea that individuals and their communities actively shape the world around them while being concurrently influenced by their environment (Crumley and Marquardt, 1987). The dialectical interactions between humans and the environment over time help us understand the formation and maintenance of landscapes, which record evidence of the intentional marks and unintentional modifications of human actions (Balée, 2006a; Crumley, 1994). In agrarian contexts, for instance, past land use practices shape and influence how humans utilize environmental resources today, thereby creating a landscape that is a reflection of both environmental processes and human activities (Crumley and Marquardt, 1990; Murray, 2010). This approach draws some of its inspiration from the French *Annales* school and its focus on the *longue durée* (Balée, 1998, 2006b; Braudel, 1958). In this sense, Historical Ecology's approach to landscapes explicitly references human agency and espouses a long-term perspective on causality.

This approach also effectively elucidates how relationships between humans and their environment must necessarily be framed in terms of both time and space; what Crumley refers to as "integrated thinking at multiple temporal and spatial scales" (Crumley, 2007). This attention to scale and context reinforces the value of Historical Ecology's approach in that it minimizes the risk of over-generalizations (Bettinger, 1998). As a result, examining the activities and behaviors of humans interacting with their environment becomes a powerful investigative framework for Historical Ecology when it systematically superimposes diachronic, extra-local factors in an effort to contribute two dimensions: historical depth and spatial breadth (Crumley, Lennartsson and Westin, 2017; Egan and Howell, 2005).

Our research project grew out of this interdisciplinary Historical Ecology framework and incorporates different methodological considerations. In the example from southwest Burgundy, France that we present in this chapter, the persistence of certain aspects of production, such as agriculture and pastoralism, are remarkable for their resilience in the face of changing economic, technological, social and political realities. This idea of resilience emphasizes a maintenance of social-ecological relationships that allows for change and adaptability while at the same time retaining a general continuity of form, be it of land use practices or of landscapes (Holling and Gunderson, 2002). In this sense, landscapes are considered as the spatial manifestation of the relations between humans and their environments, and are characterized by flexible, dialectical relationships. Admittedly, it is somewhat paradoxical that landscapes and land use practices could be preserved, all the while retaining this flexibility (Redman and Kinzig, 2003). But this is precisely what allows these landscapes to maintain their structural characteristics and productivity in the face of rapid anthropogenic environmental change, which could lead to collapse (Armstrong et al., 2017; Constanza et al., 2007). Thus, in the case of southwest Burgundy, the rural landscape has maintained a general form and structure over time, with many of the distinguishing features such as farmsteads, pastures, forests and ponds, persistently present. Yet, as we discuss in the following sections, the specific ways in which the landscape is utilized have changed significantly. We suggest that the historical resilience of the Burgundian landscape may be a model for how to study rural land use changes over time.

Overview of research area

The research findings that we discuss here build on long-standing research in the study area, initiated and fostered by Carole Crumley. This work originally centered on archaeological investigations of early Celtic polities and their social structures, which enabled an exploration of the concept of heterarchy (Crumley, 1987; Ehrenreich, Crumley and Levy, 1995) and her subsequent articulation of Historical Ecology (Crumley, 1994). Over the course of her research engagement through this long-lived and constantly evolving "French Project," Crumley led or co-led several excavations, field surveys and different ethnographic research projects with colleagues and students alike, from a number of different disciplinary backgrounds, and assembled a formative volume that examined regional approaches within Historical Ecology (Crumley and Marquardt, 1987). Over five decades, research efforts have involved participants with numerous and varied research interests from archaeology and anthropology, to geology, to ecology, to demography, to history, to ethnography (Bon, 1999; Crumley, 2000; Crumley and Marquardt, 1987; Jones, 2006; Madry, 2006; Madry and Rakos, 1996; Madry et al., 2011; Meyer, 2012; Misner, 2014; Straffin, 2000; Tickner, 2009; Van Deventer, 2001). Almost all have been focused on the interactions over time between humans and their natural and social environments and, when evaluated as a whole, these scholars' contributions offer a multidisciplinary perspective that enhances our understanding of agrarian land use practices in southwest Burgundy, France and beyond. The authors' own research project began in 2003 and grows out of this earlier research. It has evolved to be quite intentionally collaborative and interdisciplinary in all phases of the research process, from the development of research questions emerging from the intersection of disciplines, through the pursuit of data collection methods that push collaborators towards a greater understanding of each other's perspectives and expertise and finally, extends to the analysis and interpretation of complex phenomena that oblige us address a wider range of interacting factors (Jones et al., 2017). The type of complex issues may include, for example, characteristics of the sustainable use and consumption of resources over time, the roles that different social and political frameworks play in the diachronic management of environmental resources or past patterns of biodiversity across different spatiotemporal scales (Lunt and Spooner, 2005).

Our work is centered on the village of Uxeau, in the Arroux River Valley, in a key agricultural region of Europe that has maintained consistently high agricultural productivity for over 2,000 years. It is a region of verdant, rolling hills—the southernmost reaches of the Morvan Mountain range—dotted with forest patches in what is otherwise today principally a pastoral economy. There is a rich historical chronicle of events, decisions and conditions that have shaped this agrarian landscape. Archaeological and historical records highlight an area of small farmsteads consistently present since at least the Iron Age. The agrarian economy of Burgundy has long produced a reliable source of wealth for the area's elite: the Celtic Aedui polity from this region had a lucrative trading network within Celtic Europe and beyond to the Roman Empire, exporting hams, horses and ironwork (Crumley and Marquardt, 1987). Legacy landscape features from this time period exist throughout the research area in the form of burial mounds, old roadways and hillforts, including Mont Dardon in Uxeau, which was excavated in the 1970s (Crumley and Marquardt, 1987). Two of the most influential monastic orders of the Middle Ages, the Cluniac and the Cistercian, were founded and headquartered in Burgundy, and contributed numerous innovations to local agricultural practices. These monastic institutions made an impact in our research area through the establishment of outlying priories that produced food, fodder and other goods for the larger monastic institutions (such as the priory of Uxeau), and also as feudal overlords overseeing land-management practices.

Subsistence grain production, with an accompanying pastoral production of a small number of cattle for plowing and sheep for fertilizer, were dominant until the nineteenth century. The famous wine-producing areas of Burgundy are further to the east, in the Côte d'Or region, but a fair amount of wine was produced throughout the region for local consumption. Forests in the area were strictly controlled by the nobility and the church, which nevertheless provided for local construction and fuel requirements, and supported full-time specialists such as carpenters and wooden-shoe makers (Jones, 2006). The national expansion of road networks, canals and rail transportation in France over the course of the second half of the nineteenth

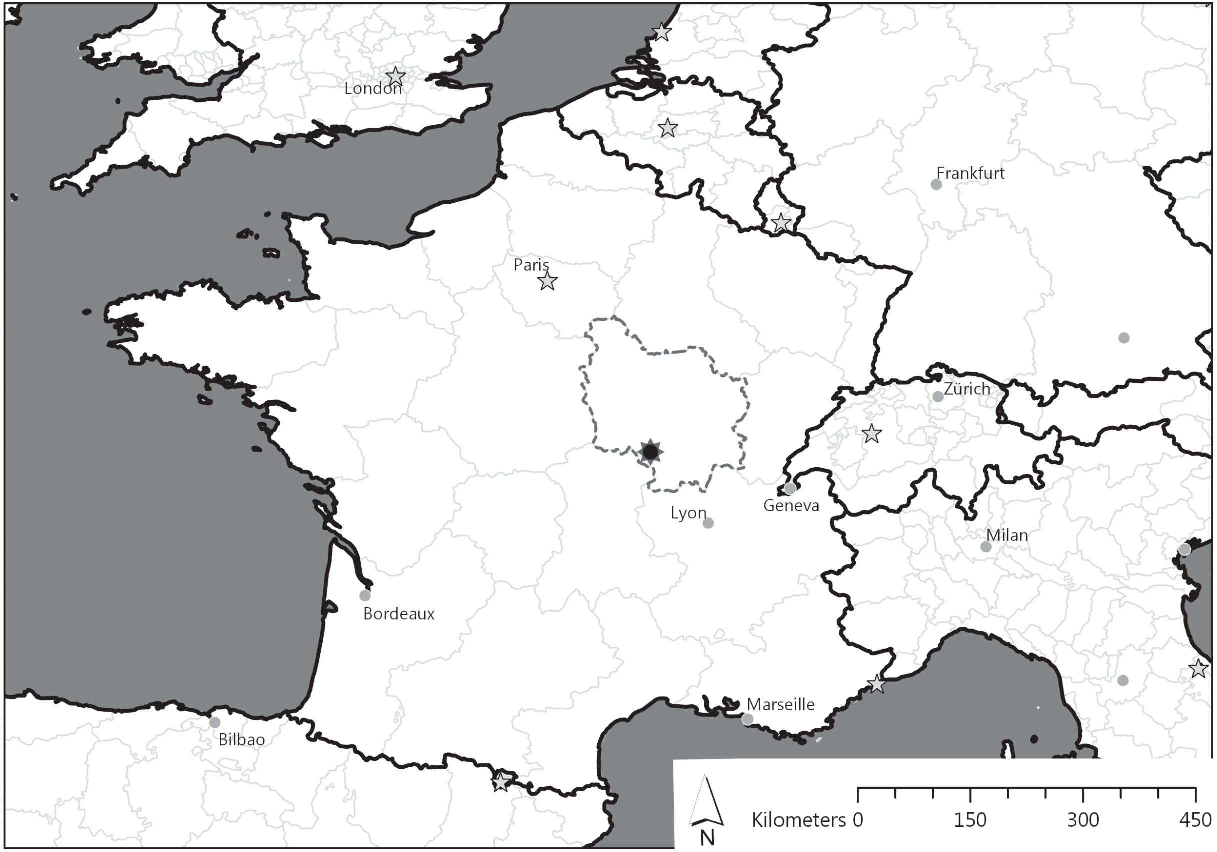
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Figure 6.1 Research area in Burgundy, France. Map by Christopher Van de Ven.

century enabled an agricultural shift in southwest Burgundy from subsistence grain production to a market economy focused on beef cattle production, primarily the Charolais breed (Schwartz, 2010). The broad features of this pastoral economy persist intact today. The general repertoire of grain, vines, livestock and forests has not changed significantly over the last three centuries; but, as we discuss below, the proportion of land use types have dramatically evolved, as has farmers' reliance on these economic resources.

Methodological considerations

Throughout our long-term study of agrarian land use practices in Burgundy, we have incorporated interdisciplinary methodological considerations from across the social sciences, the humanities and the natural sciences. Each of the authors of this chapter has a different research specialization and methodological orientation: Jones has expertise in archaeological analysis, historical demography and historical documentary research; Madry works on GIS, historical cartography and spatial analysis; and Murray has extensive experience as an environmental anthropologist and ethnographer. By extension, our research design employs a multi-method data collection strategy that draws from historical cartography and photography, archival census and demographic information, cadastral records, ecological field data and, depending on the phase of the larger research project and which land use type we investigating, ethnographic interviews were conducted with a range of farmers, local officials and other land owners. Furthermore, we coalesced spatial data from our ecological, biophysical and historical research within a geomatics platform. Our data analysis and management design employs an Open Source historical geographical information system (HGIS), which has allowed us to integrate the analysis of quantitative and spatial data with our qualitative research results (Madry, 2006; Madry and Crumley, 1990; Madry et al., 2011).

Much of our earlier work in southwest Burgundy followed a more conventional multidisciplinary model. Researchers pursued broadly similar questions about land use practices over time, but research questions and hypotheses were formulated in terms that were generally recognizable along disciplinary lines (Crumley and Marquardt, 1987). Many of the important and insightful connections between these phases of the research and the conclusions that could be derived, were drawn *post facto* (Crumley, 1994, 2007). To be clear, a multidisciplinary model has a number of benefits, not the least of which is that it permits researchers from different disciplines to more comfortably initiate participation in a shared project, to facilitate how disciplinary expertise is recognized and valued and to enable a researcher's individual scientific contributions to the project on their own terms. However, a primary focus of our more recent work has been to surpass the functional integration of traditional, disciplinary-based research questions. This interdisciplinary model more closely emulates the theoretical aspirations of Historical Ecology in that it entails the development of specific research questions that can be commonly addressed by the different data sets and disciplinary methods. Moreover, it requires interaction, collaboration and consultation at all stages of the research process (Jones et al., 2017). Collaborative, interdisciplinary research can be time-intensive and tedious, but can also be generative of new, creative ideas, which is particularly valuable when attempting to address the types of complex, interrelated questions posed through Historical Ecology.

In the case of Burgundy, we utilize an interdisciplinary research track to discuss the general persistence and resilience of land use practices over roughly the last two centuries. We combine different data types and multiple methodologies to highlight a history of land use that reflects a complex pattern of human–environment relations in the region. This includes GIS data derived from some seventeen historical maps of the region dating back to 1759. Our understanding of these historical relationships has helped us uncover some of the ways in which the long-term productive capacity of agriculture in southwest Burgundy is resilient, even though it has been transformed by environmental disruptions, economic perturbations, military conflicts and political upheavals.

Agrarian land use practices in Burgundy

Farmers in Uxeau have consistently maintained a diverse repertoire of land-use and economic strategies. In general, there is an inverse relationship between the surface area of croplands, woods and meadows between 1836 and 1988. The major shift from a reliance on grain production to cattle production began in earnest during the 1870s, when poor harvests in France necessitated wheat imports from North America and the price of wheat for domestic production collapsed. Another factor was the compulsory military service established following the 1870–1871 Franco-Prussian war. While in the military, men ate meat daily, whereas in rural France, meat consumption was still considered a luxury to be eaten for special celebrations. Discharged soldiers developed an expectation of regularly eating meat which, combined with the burgeoning urban populations of the Industrial Age, dramatically increased the national demand for meat and raised meat prices. Thus, when grain was cheap in the 1870s, it was cost-effective to buy grain to feed cattle. Coupled with the advent of a nationwide railroad system and other improvements in transportation, the 1870s initiated what became an enduring transition from a grain-based economy to a cattle-based economy in Uxeau. Furthermore, protective tariffs on cattle imports in 1881 invigorated the cattle industry. Even with this market transition, grain production continued and would even periodically increase during crises, such as during World War One (WWI) (as shown in our records from 1915), the Great Depression (records from 1930) and after the

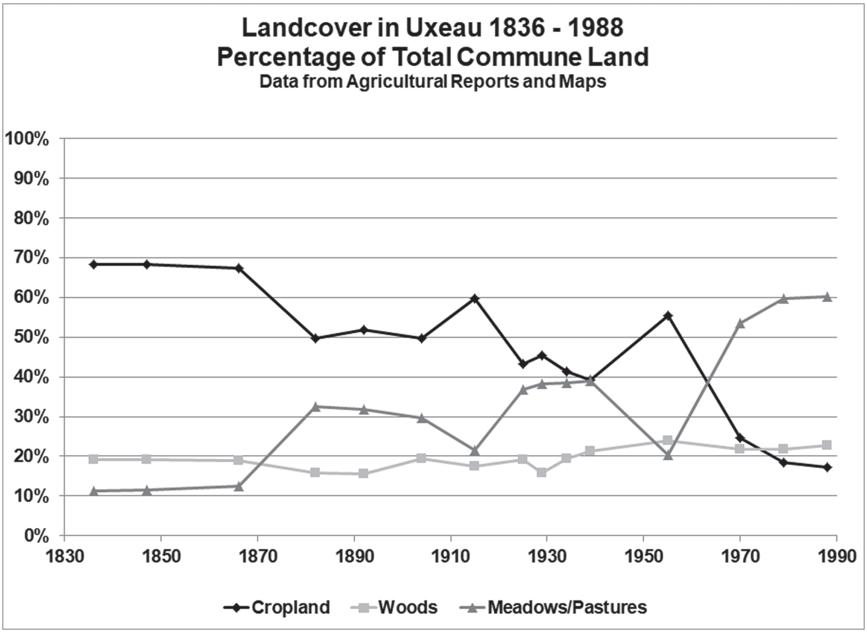


Figure 6.2 Changes in surface area by land use, 1836–1988 (illustration by Elizabeth Anne Jones).

Second World War (WWII) (records from 1945). Our research demonstrates how farmers' diverse repertoire of agricultural production offered them the flexibility to adapt successfully to rapidly changing economic, political and environmental conditions. In the following sections, we describe the five main agrarian land use types in Burgundy and highlight specific facets of the landscapes that have persisted, evolved or disappeared over time. The objective here is to briefly demonstrate how the analysis of each land use type necessitates a different set of methodological approaches and disciplinary perspectives, and how the aggregate analysis displaces our grasp of conventional economic history and moves us towards an interdisciplinary understanding of agrarian land use practices.

Grain

A diverse range of crops was grown over the nineteenth and twentieth centuries. Proportions of crops changed over time in response to climatic conditions, transportation networks and economic demand, but no crops ever disappeared entirely from the agricultural repertoire. Rye was the dominant cereal in 1836. The cold conditions of the first half of the nineteenth century made rye a safer option than wheat which favors warm, dry weather.

Rye straw was also used to thatch houses and as fodder for livestock. By the mid-nineteenth century, however, an improved transportation network (railroads, canals and roads) reduced the chance of famine and enabled the shift from a subsistence economy to a market economy. Small amounts of barley, potatoes and buckwheat were still produced for domestic consumption and, since these crops are hardier in bad weather, they were a guarantee against wheat crop failure. Oat production increased significantly by 1904 because horses were used to pull the new farm equipment, such as reapers and threshers. By 1904, wheat was the predominant crop mainly because of urban taste preferences for wheat over rye bread, even though wheat is a less reliable crop in the shifting climatic conditions of Burgundy. Fodder, hay crops and pasture all increased significantly over the nineteenth century with the transition to a pastoral economy centered on Charolais cattle.

Cattle

In 1836, sheep were raised in large numbers as an adjunct to grain production. Manure from sheep grazing on fallow fields helped maintain soil fertility. Sheep's wool supplied a cottage industry of weavers in Uxeau destined both for local needs as well as for resale in urban areas by intermediaries. Cattle numbers show a steady overall increase from 1836 to 1988 and are now the principal livestock. Farmers in Uxeau made the switch to cattle production relatively easily because of their familiarity with raising cattle to pull plows and wagons. A single plow team in Burgundy required as many as eight oxen due to the heavy soils, so that large farms often had as many as 24 head of cattle (three plow teams). The number of horses, while small, also rose steadily in the late nineteenth and early twentieth centuries since horses were needed to pull the new farm equipment that became available late in the nineteenth century. In the nineteenth century, pigs were the only meat consumed by the farming families as the meat was easily preserved. A notable drop in cattle and concordant rise in pig production occurred in 1929, which reflects the impact of the Great Depression in rural areas and the rapid shift from market production to subsistence needs. Pigs were fed mainly on the acorns and beech mast from the area's sizeable forests, and were a resource that could be easily and quickly increased as demands required. The switch to pastoralism in the late nineteenth century meant that fewer workers were needed for farm labor and this exacerbated a national trend of rural depopulation that began with industrialization and accelerated after WWI.

Vines

Viticulture was an integral part of a diversified farming portfolio in the nineteenth century, as vines could grow on granitic, rocky and sandy slopes that are unsuitable for grain production. The surface area of vines planted in

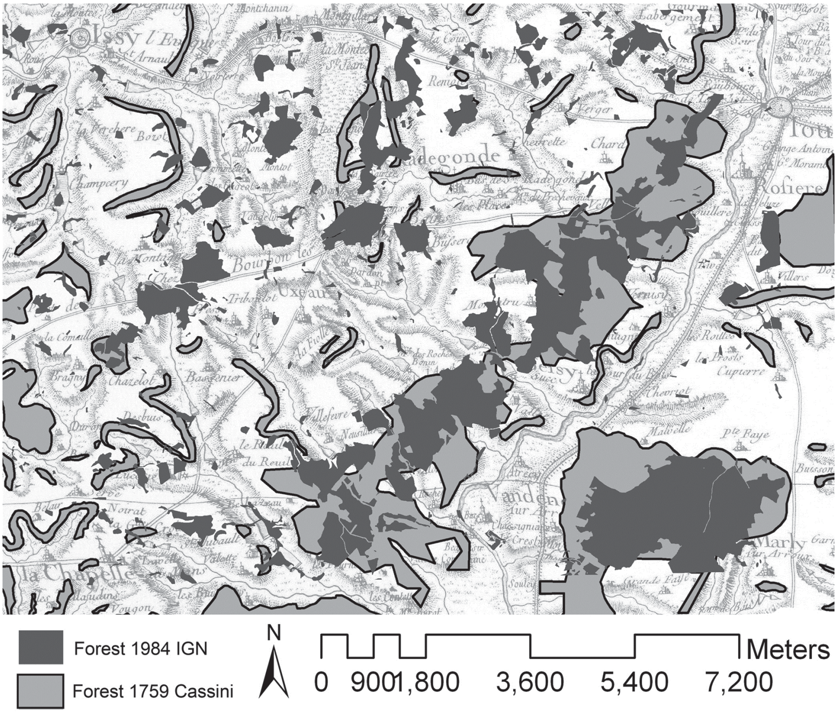
Uxeau remained relatively stable (approximately 40 hectares) throughout the century. The *Phylloxera vastatrix* epidemic arrived in France from the United States in 1862 and the renowned wine-producing Côte d'Or area in eastern Burgundy was afflicted in 1878. Uxeau was not immediately affected by phylloxera because of its relative geographical isolation and the common use of intercropping, namely planting vines between rows of other crops, which slowed the spread of the insects. Farmers in our study area took advantage of the resulting market scarcity to greatly expand their wine production in 1880–1881, doubling the area of vines cultivated fifteen years earlier). Beginning in 1887, new vineyards were not taxed for the first four years, which was an incentive to replant and resulted in a wave of replanting from 1888–1900. Eventually, several factors contributed to the quasi-abandonment of viticulture in Uxeau after the 1930s: the recovery of other important wine-producing areas in France, the economic depression of the 1930s, the Prohibition era in the United States and new governmental subsidies for uprooting vines that were an incentive to reduce supply and thereby raise market prices. Our ethnographic investigations in 2014 with a dozen households that either formerly or still cultivate vines in the research area revealed that a dwindling numbers of farms continued to have vines to produce wine for local markets through the early 1970s. Now, the miniscule number of vines remaining is solely for household production and consumption of the liqueur Marc de Bourgogne.

Forests

Forests are another important feature of land use throughout our study period. Forests can be grown on soils that are of too poor quality for grain crops. The forested surface area in our research area has varied over the last 250 years, but specific forest locations have been remarkably stable.

Beech and oak are the most common trees, although at higher elevations beech is supplanted by hornbeam. Forests were harvested for firewood, making charcoal, procuring building materials or wooden shoe-making, but they were also important resources for grazing animals, especially pigs which were solely fed on acorns and beech mast. Berries, herbs and nuts were other important forest resources. Historically, the hunting or poaching of deer and rabbits (depending on whether you were nobility or peasant) were important activities in forests and remains popular today.

A comparison between the 1759 Cassini map (the first maps in France to be based on the modern scientific concepts of triangulation and field survey) and modern forests within our GIS database indicates significant similarities in forest cover. Although forests have become notably more fragmented, the major forested areas remain, although with a diminished footprint. In 1759, there were 36.16 km^2 of forests in 67 individual polygons or individual patches, whereas forest cover was 23.98 km^2 in 404 polygons in 2003. In most cases, the primary forest zones persist on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Chazelot
Montchanin
Labergement
Marly
Buisson
Villers

Figure 6.3 Forest cover change in GIS, 1759–1984 (illustration by Scott Madry).

hilltops and sloped areas with poor granitic soils and a high potential for erosion, and thus are not suitable for crops or pasture. In terms of forest composition, the Cassini map does not indicate the presence of coniferous forests, whereas the modern landscape contains a significant proportion of conifers, which are mostly sylviculture plantations established after 1951, but also include invasive acacias (which were often planted to control erosion in the 1970s).

Forests were more prevalent in 1759 than in the nineteenth century, which is consistent with a general pattern of heavy deforestation across France during the decades after the Revolution. The forest surface area was remarkably stable throughout the nineteenth century, but during WWI forested surface area decreased due to the demand for charcoal during the war. An overall afforestation trend began after 1918 that continued throughout much the twentieth century. The exception to this overall trend was during WWII when, as elsewhere in France, the use of forest resources increased as gasoline and other fuels became more scarce, causing a significant reduction in forests. After WWII, reforestation was encouraged throughout France. Government subsidies enabled many coniferous plantations in the region from 1946 to 1955. Over the last decade, many of these plantations have reached maturity and are being harvested, which was confirmed during our field surveys in 2018. Current and future decisions must be made on which tree species to replant, what considerations should be made for biodiversity or legacy species (if any), and what role forests will continue to play in the region's land use repertoire.

Ponds

Water is obviously a key component to all agricultural systems. Our research has examined the role and multifunctionality of ponds in Burgundy as integral features of the agrarian landscape over the last 250 years (Madry et al., 2015). All of the ponds in the study area of Uxeau were human-made, contained by earthen dams, some of which were over six meters high. The remarkable effort and labor required to create these ponds prior to the mechanization of agriculture underscores their historical economic importance. Before the twentieth century, ponds were most valued as gristmills, although ponds were also used to raise fish, a major source of dietary protein. Until the late nineteenth century, farming in Uxeau was a subsistence activity based on grain, almost all of which was consumed within the village. Roads and wagons were few and transport to a mill was difficult. Our spatial analysis of historical cartographical data using the GIS reveals that almost all farmsteads in the study area were situated within two kilometers of a mill and most were even closer.

Aquaculture persists to a very limited extent in the research area today. Our ethnographic investigations indicate that when it is time to harvest the fish for sale, the pond is drained all at once and the fish sold in bulk. Other historical uses for ponds included watering livestock, raising waterfowl, soaking hemp prior to fiber production and doing laundry twice a year (a bride was expected to give her groom 60 hemp shirts as part of her dowry so laundry did not have to be done so often as might be expected). Although ponds are a persistent feature of the landscape and have actually increased in number over the twentieth century, only a few of the many ponds in the region have been present across the timeframe of our analysis, making them somewhat surprisingly ephemeral in nature. Many of the large older ponds have now been filled in to create pastures for cattle. Although the maintenance of the ponds is quite costly and labor intensive, as the banks and dam have to be maintained and the pond regularly dredged according to current European Union standards, new ponds have even been recreated in the last twenty years in historical locations, principally for recreational purposes, such as swimming, fishing or camping. The number of vacation homes is increasing in the region and our ethnographic investigations in 2009 (with fifteen different households that either owned or leased ponds in the research area) confirmed that the most important use of ponds today is for aesthetic purposes and recreation.

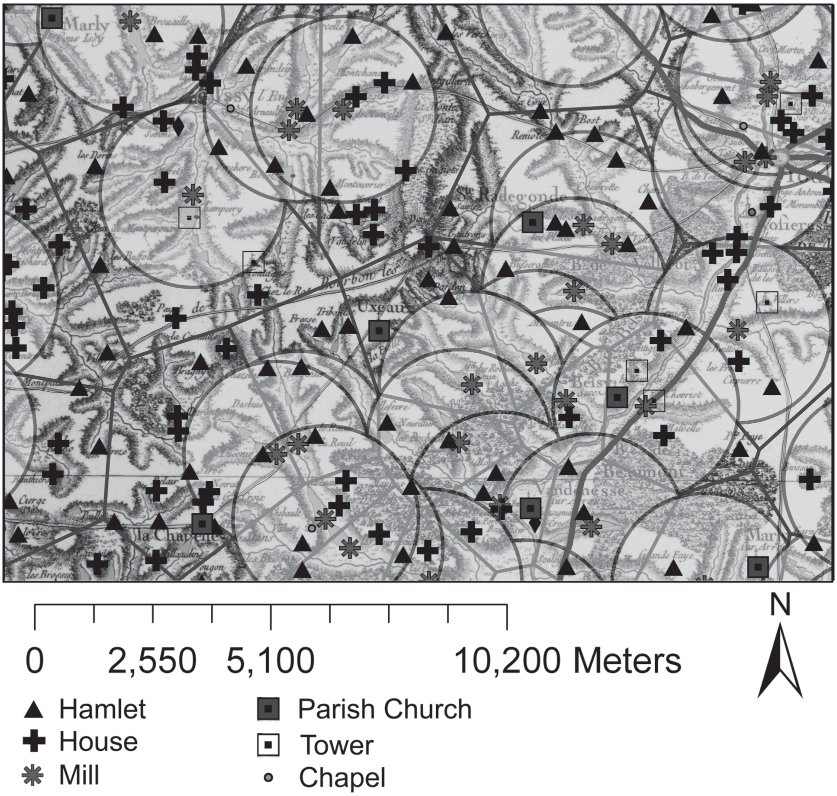

Figure 6.4 Two kilometer buffer of ponds with gristmills in GIS, 1759 (illustration by Scott Madry).

Synthesis of agrarian land use practices in Burgundy

Our research has shown that a diverse portfolio of crops and livestock has been maintained in the research area, in addition to extractive industries such as forestry and, to a much lesser extent, aquaculture. To summarize, 1) water, fishponds and mills have played important roles in our region which have changed over time; recreation is now a primary driver; 2) both vines and forests have been strategies for using marginal lands for cash-producing commodities, and both have been strongly influenced over time by government subsidies, external ecological forces or military interventions; 3) farmers in Uxeau maintained a diverse repertoire of crops and animals throughout the past 250 years, which means that the broad knowledge base of different types of production may be preserved, allowing for some flexibility in adapting to changing conditions.

Even when production totals were low, no single resource has ever been entirely abandoned. This suggests that local Burgundian farmers preserved elements of traditional ecological and agricultural knowledge, and that inherited cultural practices both reflect and shape their relationship with the land. We suggest that herein lays the inherent value of Historical Ecology's approach to understanding the diachronic relationship between humans and the environment. The persistence of a diverse economic strategy maintained a broad base of preserved knowledge, which could facilitate a quicker response to changing economic and environmental conditions. These conditions included market opportunities and demands, the accessibility of transportation networks, the availability and affordability of farming technologies, changing local and national demographics and the evolution of French culinary tastes. Economic diversification remains an important strategy at the village level today. This flexibility in economic strategies accounts for the general persistence of small family farms in Uxeau, which, unlike many areas of France, have lasted until the present.

Conclusion: moving Historical Ecology from interdisciplinary to transdisciplinary objectives

Carole Crumley first undertook research in this part of Burgundy in the mid-1970s and it became a frontline in the creation and refinement of a concept that we now identify as Historical Ecology. Although by its very nature Historical Ecology requires an interdisciplinary *and* collaborative framework, that doesn't mean that all interdisciplinary research is the same, as the complexity and extent of research collaborations vary (Thompson-Klein, 2012). The simplest interdisciplinary work is multidisciplinary, the weaving together of the results of separate disciplinary research efforts after the fact in order to create a kind of interdisciplinary interpretation. The most productive interdisciplinary research is more than mere information-sharing, where different disciplinary experts work together to develop the research design by concurrently refining questions to address a common problem based on shared background or contextual information (Boden, 1999). Determining answers to complex issues, such as those related to the history of agrarian land use practices in Burgundy that we have discussed here, would likely not be possible if research pursuits were confined to the silos of individual disciplines (Moen, 2015). By collecting and integrating different types of data and by employing a variety of analytical methods, we are better able to understand the complex phenomena that lie at the intersection of human–environment relations.

However fruitful interdisciplinary research endeavors may be, we are hopeful for the emergence and development of transdisciplinary research initiatives. We have recently argued that if interdisciplinary research is to be more successful in its integrative and collaborative approach, then it needs to contribute directly to the erosion of boundaries between academic disciplines, as well as minimize the separation of academics from local stakeholders, such as farmers, rural residents and others landowners, in the case of Burgundy. Within the contexts of the efforts discussed in this chapter, transdisciplinary research seeks to rise above disciplinary boundaries in order to push interdisciplinary research to a higher level and forge a "holistic approach that is more than just the sum of the parts" (Jones et al., 2017:242). Our own emergent lines of inquiry in Historical Ecology are shifting from interdisciplinary to transdisciplinary objectives in two important ways. To date, we have used interdisciplinary methods to examine different aspects of the landscape: crops and livestock, vines, forests, ponds and mills, et cetera. The next step is to examine the interaction of these land use features to create a more complex understanding of how the landscape evolves as a whole. Secondly, we are also now engaged in a broader comparative study of the factors influencing the persistence of farming in three European sites, in central Sweden, northern Romania and Burgundy. Our goal is to comparatively examine the nature of land use changes in these areas over the last two centuries. A comparative framework highlights aspects of land use that might have gone unnoticed in any one area and, in light of the contrasts revealed by comparing these different areas, forces an examination of our fundamental assumptions about landscapes. In this comparative research, we combine expertise in ecology, folklore, history, archaeology, demography, ethnography and geomatics to develop research questions addressing, for example, the factors that influence hay production in relationship to the larger agrarian systems (Lennartsson et al., 2016), the impact of economic diversification and the range of ecological knowledge (both traditional and modern) on agroecosystems, the relationship between biocultural heritage and forestry histories, and the very process of undertaking collaborative research (Jones et al., 2017). Shared research questions, data integration and interlocking methodologies are important steps for interdisciplinary research, but we are confident that Historical Ecology is also a fertile field for nurturing the growth of genuine transdisciplinary research.

Acknowledgments

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Défense Château de Vincennes and the Archives Nationales in Paris, as well as all of the generous people who allowed us access to their property and assisted us in the field over several decades. None of this, of course, would have been possible without the guidance and vision of Carole Crumley, to whom we owe our deep gratitude.

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7 Resilience, heterarchy and the Native American cultural landscapes of the Yazoo Basin and the Mississippi River Delta

Christopher B. Rodning and Jayur M. Mehta

Carole Crumley has made innovative contributions to Historical Ecology, the complicated but complementary relationship between archaeology and ethnohistory, relationships between culture and climate change, the concept of heterarchy and the archaeology of landscape. Professor Crumley and William Marquardt (1987:1) define landscape as "the spatial manifestation of the relationship between humans and their environment." While acknowledging the *hierarchical* administrative structure of the Roman empire, Crumley (1979:144) characterizes the Roman and Celtic landscape of Burgundy as *heterarchical*, in that it possesses "the potential of being unranked (relative to other elements) or ranked in a number of ways, depending on systemic requirements" (see also Crumley, 1995). These perspectives shape our consideration here of the Native American landscape and earthen monuments of the Lower Mississippi Valley and southeastern Louisiana, areas perhaps better described not as a *landscape*, but as a *waterscape*, given the powerful role of water in shaping the environment and land surfaces that were platforms for settlements, monuments and fields. We consider evidence about hierarchy and heterarchy in Native American landscape and society in the Yazoo Basin of northwestern Mississippi and the Mississippi River Delta of southeastern Louisiana. We are interested primarily in the extent to which cultural landscapes here demonstrate an emphasis on resilience.

Resilience is the property of ecosystems and cultural systems that enables them to withstand disturbance, disruption, disaster and collapse, and the capacity of those systems to resuscitate or to regenerate themselves (Folke, 2006; Holling, 1973; Kohler, 2012; Redman, 1999, 2005, 2012). Archaeologists have reconstructed cultural practices that promote resilience in diverse world areas, including the American Southwest, where long-term and short-term cycles of aridity and cold temperatures have affected Native American landscapes and lifeways (Nelson et al., 2012; Ravesloot et al., 2009; Redman et al., 2009); the Maya area of Mesoamerica, where water management, forest management, fire regimes and climate change dramatically altered the natural landscape and geopolitical landscape during the pre-Hispanic period (Dunning et al., 2009;

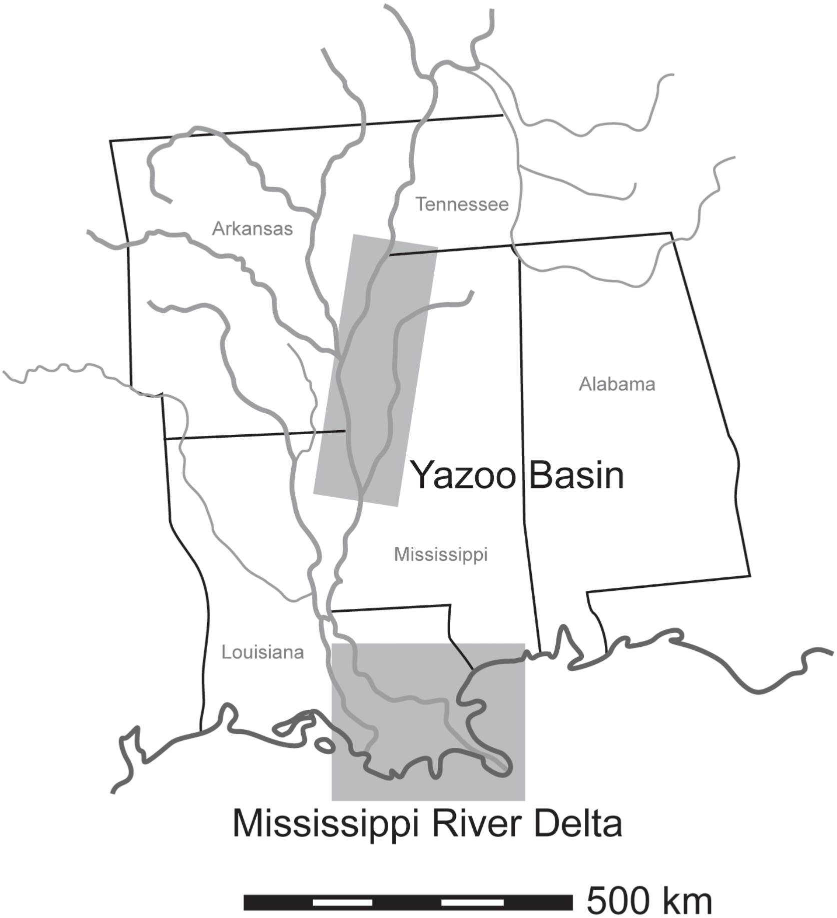

Figure 7.1 Study areas in northwestern Mississippi and southeastern Louisiana (authors).

Scarborough, 1998, 2009); and highland Mexico, where pre-Hispanic groups effectively managed terraces and artificial islands in lakes before the collapse of political systems and social networks through which people had maintained them before Spanish contact (Calnek, 1972; Fisher, 2005, 2009; Fisher et al., 1999; Morehart, 2012, 2016; Morehart and Frederick, 2014; Parsons, 1976). Many archaeological considerations of resilience concentrate on areas where water is scarce, at least periodically, and where there is minimal water to support farming and sedentary settlements. Quite the opposite is typically true for the Lower Mississippi River Valley and the Mississippi River Delta itself, where dry land can be relatively scarce, and where there is periodically too much water due

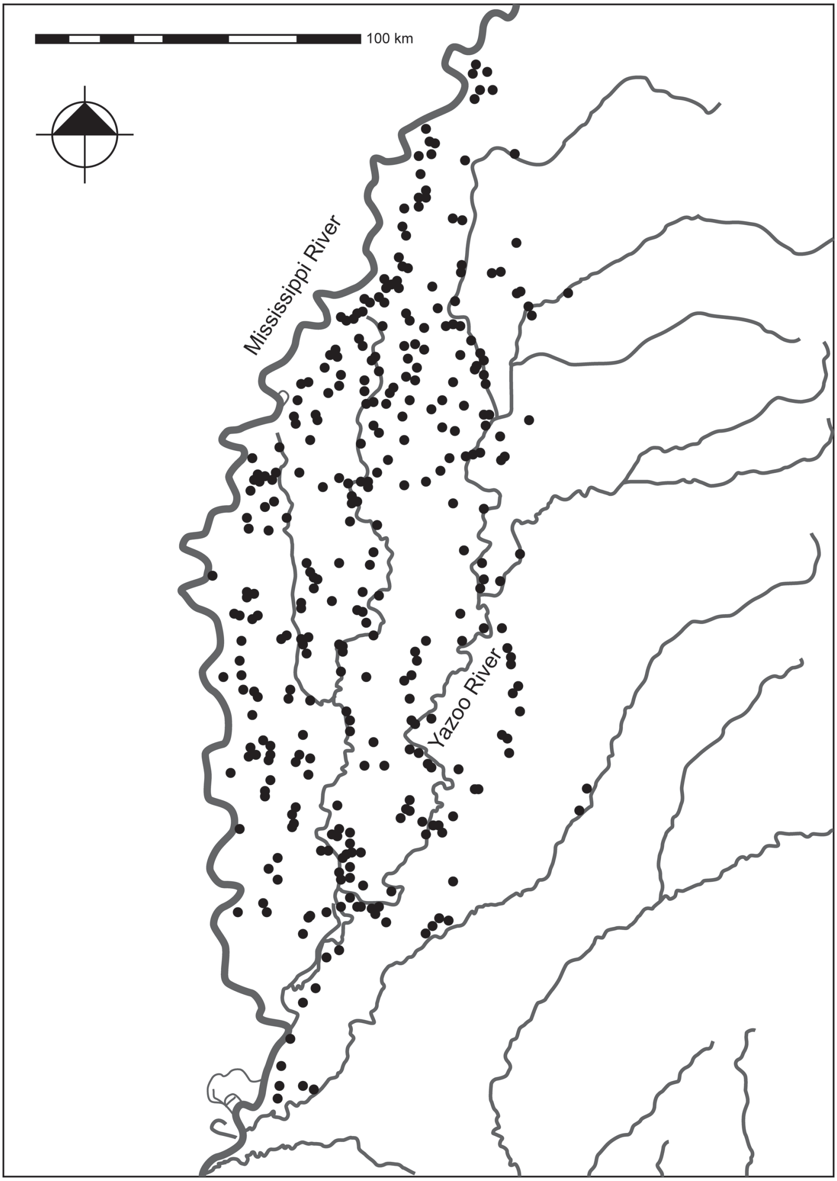

Figure 7.2 Mound sites in the Yazoo Basin, Mississippi (map by Bryan Haley).

to hurricanes, fluctuations in sea level, and increased volumes of water transported by the Mississippi River and other streams from snowmelt and seasonal storms further inland along the Mississippi, Missouri, Tennessee, and Ohio rivers.

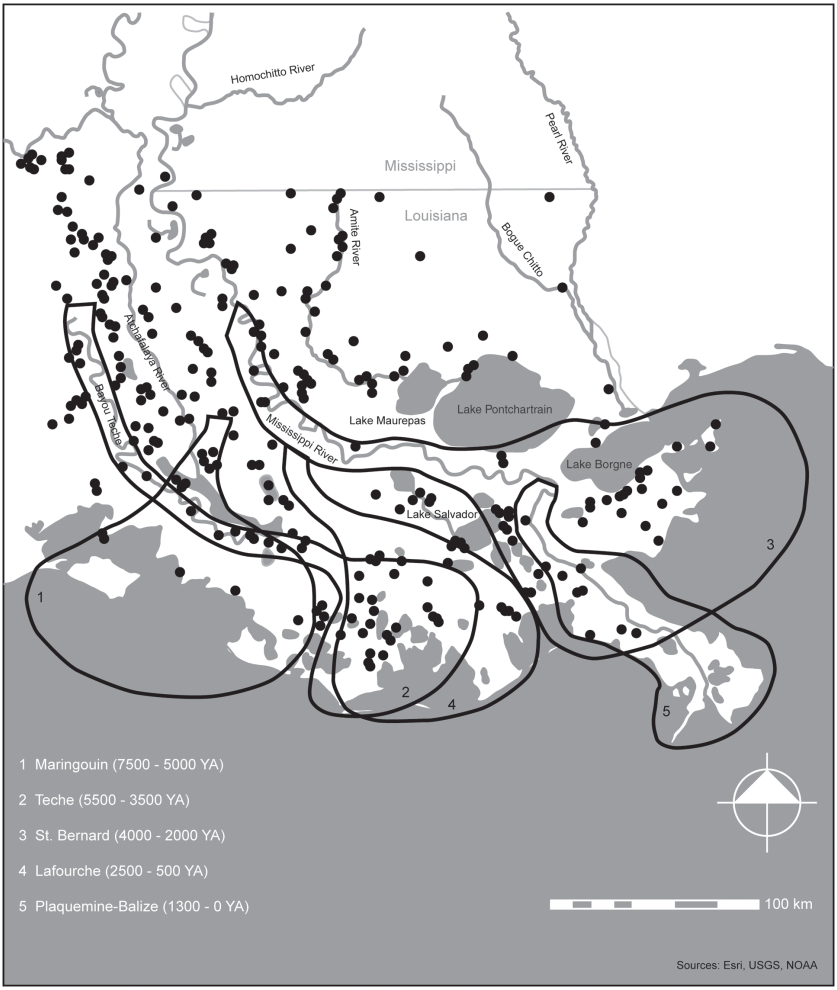
Homochitto River
Pearl River
Mississippi
Louisiana
Amite River
Bogue Chitto
Atchafalaya River
Bayou Teche
Mississippi River
Lake Maurepas
Lake Pontchartrain
Lake Borgne
Lake Salvador
1
2
3
4
5
1 Maringouin (7500 - 5000 YA)
2 Teche (5500 - 3500 YA)
3 St. Bernard (4000 - 2000 YA)
4 Lafourche (2500 - 500 YA)
5 Plaquemine-Balize (1300 - 0 YA)
100 km
Sources: Esri, USGS, NOAA

Figure 7.3 Mound sites in the Mississippi Delta, Louisiana (map by Jayur Mehta).

This paper considers the archaeology and ethnohistory of the Yazoo Basin, in northwestern Mississippi, and the Mississippi River Delta of southeastern Louisiana. The Native American cultural landscapes of both areas can be described as heterarchical, in that they encompass many different sites with earthen mounds, with the potential for diverse forms of ranking relative to each other. Within the Yazoo Basin, some large mound sites periodically emerged as dominant centers within a hierarchical geopolitical landscape, but in the Mississippi River Delta of southeastern Louisiana, environments favored dispersal rather than centralization and heterarchy rather than hierarchy.

The Yazoo Basin in northwestern Mississippi

The Yazoo Basin, an area also known locally as the Mississippi Delta, is the birthplace of blues music, the setting for sprawling cotton plantations and sharecropper homesteads in the nineteenth century, an area where intensive logging took place and where hardscrabble lumber towns grew out of thick forests and swamps during the late 1700s and early 1800s, an area of dense Native American settlement during the period before early European contact in the sixteenth century, the setting for dense concentrations of monumental earthworks dating from the third millennium BC through the sixteenth century AD and the eponymous landscape of yazoo streams (Dorris, 1929; Kidder et al., 2008; McNutt, 1996a, 1996b; Phillips, 1970; Phillips et al., 1951). Named after the Yazoo River itself, "yazoo streams" are watercourses that flow within the floodplain of a larger river, that run generally parallel to the main river channel and that are prevented from meeting the main river by natural levees. The Yazoo Basin is an alluvial plain (not a delta, strictly speaking) encompassing close to 2,000,000 hectares, it is 113 kilometers wide at its widest point and it boasts some of the richest soils and farmland in North America. Loess bluffs and the Yazoo River itself form the eastern edge of the Yazoo Basin; the northernmost point of this region is Memphis, Tennessee; and its southernmost point is the confluence of the Mississippi and Yazoo rivers near Vicksburg, Mississippi. The Yazoo River itself originates at the confluence of the Tallahatchie and Yalobusha rivers, and it flows 303 kilometers south and southwest to its confluence with the Mississippi River. Myriad streams feed the Yazoo, including the Sunflower River, Deer Creek, and Steele Bayou. Natural levees along the Mississippi River prevent all these streams from meeting the Mississippi until the mouth of the Yazoo. From this confluence, the Mississippi flows 480 kilometers further south to its mouth in the Mississippi River Delta of southeastern Louisiana.

Prehistoric Native American population density in the Yazoo Basin was higher than most other areas of the continent, with the possible exceptions of some areas in coastal California, and areas within the Central Mississippi Valley such as southeastern Missouri and eastern Arkansas. There are high concentrations in this region of Native American sites with monumental earthworks, including some examples of very large earthen mounds, like those at sites such as Winterville and Lake George (Brain, 1978, 1987; Williams and Brain, 1983). There are many sites in the Yazoo Basin with large numbers of mounds, sometimes arrayed in groups around multiple earthen plazas and sometimes covering large areas, as in the case of Carson, built on high ground beside a relict channel of the Mississippi River (Mehta et al., 2012) and the Hollywood mound site (Haley, 2014). It is likely that site locations reflect, in part, considerations about dwelling within a landscape that experiences flood cycles at annual and other temporal scales (Johnson, 1997). Geophysical survey and excavation have identified concentrations of houses within discrete neighborhoods at some sites, as in the case of the Parchman Place site (Johnson and Haley, 2006; Nelson, 2014). The numbers of sites with earthworks, the numbers of earthen mounds, and the dimensions of many mounds and mound stages, are all consistent with the idea that large amounts of resources and labor were devoted towards constructing earthen monuments at sites that were centers for regional chiefdoms of varying scales. Examples of such sites include Carson, Winterville and Lake George, at each of which are several large earthen mounds and large earthen plazas, collectively encompassing considerable investment in the organization and mobilization of labor (Brain, 1987; Williams and Brain, 1983). The dramatic scales of earthworks and moundbuilding after AD 1200 in the Yazoo Basin and Natchez Bluffs region to the south have been characterized as "megalomoundia" (Brain, 1978:345), when large mounds and plazas were built anew or large mound stages were added to smaller extant earthworks (Mehta et al., 2015); at least some of this moundbuilding must have been related to rivalry between competing polities. There were probably cycles in the relative status of neighboring chiefdoms (Kidder, 1998) and we perhaps should characterize this geopolitical landscape as heterarchical—or, alternatively, multicentric or polycentric—with dominant centers of geopolitical networks periodically shifting across a landscape dotted with a great many mound centers. Moundbuilding has an ancient history in the Lower Mississippi Valley, including the Archaic earthworks at Watson Brake and Poverty Point in northern Louisiana.[1] Within the Lower Mississippi Valley, there are some sites with earthworks dating to the Archaic period, before 1000 BC, more sites and more mounds dating to the Early Woodland and Middle Woodland periods, even more sites with earthworks dating to the Late Woodland periods and others dating to the Mississippi period, after AD 1200.[2] Mississippian societies inherited a monumental landscape with a long history of its own. If the power wielded by leaders of these societies compelled people to participate in building and rebuilding these earthworks, the archaeology of the Yazoo Basin demonstrates concentrations of power within particular people and particular places and periodic shifts in geopolitical centers across the landscape throughout prehistory.

The name of the Yazoo River derives from the Native American group living at its confluence with the Mississippi during the late seventeenth century (Brown, 1992). In 1541, when Spanish conquistadors traversed the northern Yazoo Basin and crossed the Mississippi River, this region was home to powerful chiefdoms, including those known in Spanish accounts as Quizquiz and Quigualtam (Hudson, 1997a, 1997b). Spanish conquistadors traversed the province of Quizquiz, in the northern Yazoo Basin, where they found evidence of extensive and productive fields, but they only barely skirted the edge of the province of Quigualtam, in the southern Yazoo Basin, which Hernando de Soto learned was home to one of the most powerful chiefs and most highly centralized chiefdoms in the Mississippian Southeast (Johnson, 1997). In 1682, when French explorers and traders reached the Lower Mississippi Valley, the region was home to several Native American groups, including the Yazoo, Tiou, Ofo, Koroa, and Tunica, with the Natchez concentrated further south in the Natchez Bluffs region, and the Taensa across the Mississippi River in northern Louisiana (Brain et al., 2004; I. W. Brown, 1985, 2007, 2008; J. A. Brown, 1990; Lorenz, 1997, 2001; Mehta, 2013; Neitzel, 1965, 1983; Swanton, 1911, 1946). During the period between Spanish and French contact, the chiefdoms of Quizquiz and Quigualtam had collapsed. Perhaps the hierarchical geopolitical framework of either or both Quizquiz and Quigualtam encompassed many different groups and when that framework collapsed in the aftermath of Spanish contact, the constituent groups rearranged themselves in decentralized and heterarchical patterns.

Developments leading to the collapse of Mississippian chiefdoms in this and other areas of the Southeast during the mid-to-late sixteenth century are complex (Hudson, 1997a, 1997b; Johnson, 1997). Within settings of direct Spanish contact, especially prolonged visits by Spanish expeditions, the power and prosperity of Mississippian chiefdoms declined precipitously, as in the case of Coosa and Cofitachequi in the greater southern Appalachians (Hudson, 2005; Smith, 2000, 2001) and in the case of the rival chiefdoms of Casqui and Pacaha in northeastern Arkansas (D. F. Morse, 1990; P. A. Morse, 1990). That said, the Spanish presence in the Yazoo Basin was ephemeral (Hudson et al., 1990), although the scale and scope of Spanish contact in this part of the Southeast was greater than we might predict from the relatively fleeting Spanish colonial presence within the Yazoo Basin (Rodning et al., 2018). Warriors from Quigualtam chased surviving and by that point, beleaguered, members of the Soto expedition downriver in 1543. French explorers reached these areas in 1682 by which time the chiefdoms of Quizquiz and Quigualtam were gone (Brown, 2008; Williams, 2001), although the monumental earthworks that dotted the region during the Woodland and Mississippi periods were of course durable and visible landmarks.

One reason for the collapse of Mississippian chiefdoms in the Yazoo Basin was geopolitical instability introduced by Spanish expeditions and Spanish goods (Ethridge, 2010; Smith, 1987), another was slave raids by Chickasaws and others on dense concentrations of people in the Yazoo Basin and another the compounding effects of reduced landscape management by Native American groups. As evident from documentary sources about the Soto expedition, there were extensive agricultural fields between villages within the province of Quizquiz and the same written accounts attest the practice by Mississippian chiefs of mobilizing and managing large surpluses of food and other resources. This political economy was enabled by landscape management, but palynological studies indicate that the landscape became overgrown during the period after Spanish contact (Scharf, 2010; see also Delcourt et al., 1999; Dull et al., 2010; Nevle et al., 2011), probably because of diminishing numbers of people and diminishing power of community leaders to mobilize the labor necessary to maintain high levels of productivity. Diminished productivity accentuated other forces that led to the collapse of highly centralized and hierarchical chiefdoms and the emergence of the decentralized landscape of diverse groups present in the Lower Mississippi Valley at the point of French contact in the late seventeenth century. The cultural system that supported the construction of large earthen monuments and the dense concentration of sites with multiple such earthworks had endured long-term cycles of seasonal flooding, but it proved vulnerable to the disturbances and ruptures by comparatively shorter-term episodes of encounters and entanglements with European explorers and colonists.

The Mississippi River Delta in Louisiana

The Mississippi River Delta of southeastern Louisiana is one of the largest wetland ecosystems in North America (Gagliano, 1984). This landscape is shaped largely by alluvial deposition, natural levee formation, cycles of formation, along with abandonment of deltaic lobes and fluctuations in sea levels. Fluctuations in sea levels alter the courses of rivers and streams seeking the shortest and fastest route to sea level. Intuitively, we should expect to find evidence for concentrations of sites on relatively high ground and on the most stable landforms within wetland environments. One evidentiary constraint is that much of the landscape in southeastern Louisiana has been affected by modern water management, construction and management of modern levees and construction and maintenance of canals, all of which complicates our ability to reconstruct past environments here. Without modern intervention, the Mississippi River would flow not along its current course, but instead through the Atchafalaya Basin to the west, and, indeed, there is evidence of delta formation at the mouths of both the Atchafalaya and Mississippi rivers. Nevertheless, we can make some sense of the spatial distribution of sites, including sites with earthen mounds. Given the dynamic history of deltaic cycles and sea level fluctuations in southeastern Louisiana, we hypothesize that monumental earthworks and mound site locations will demonstrate an emphasis on resilience and persistence of place in an impermanent landscape setting.

Early mound sites in southeastern Louisiana date from the Archaic period (Saunders, 1994), but there are not as many such sites as there are further upstream (Gibson, 1994). Most early mound sites are located north of lakes Maurepas and Pontchartrain, in part because much of the land further south—and further downstream—had not formed yet (Shuman, 2007). There is evidence for widespread settlement in the Pontchartrain Basin during the Early Woodland period, there are some examples of Middle Woodland settlements dating to the late first millennium BC and early first millennium AD, and there is evidence for a dramatic increase in the numbers of sites dating to the Late Woodland period, including sites with earth or shell mounds, comparable to the dramatic increase in the number of mound sites in the Yazoo Basin at approximately the same time (Brown, 1984; Kidder, 2004; Rodning and Mehta, 2016). Many such sites were located on relict levees and other relatively high ground areas dominated by permanent and seasonal wetlands, and we hypothesize that landforms were colonized soon after they first developed (Mehta and Chamberlain, 2018). There are few examples of sites in the Mississippi River Delta with mounds built at the same scale as those further upstream in the Lower Mississippi Valley. One site is known to have had as many as 11 mounds; another had at least five, probably six or seven; but most sites have smaller numbers of mounds, with no clear candidates as dominant regional geopolitical centers (Davis, 1984; Kidder, 2004). Mound sites here are more likely to have been landmarks and persistent places for spatially dispersed foraging/fishing/farming communities than capital towns within rigidly hierarchical societies.

This interpretation finds support in the ethnohistory of Native American groups in southeastern Louisiana, including the Washas, Chawashas, Chitimachas and Houmas (Brightman, 2004; Campisi, 2004; Davis, 1984; Giardino, 1984; Rodning and Mehta, 2017). The Washas and Chawashas lived in areas near the Mississippi River and several large lakes close to New Orleans. Villages often shifted across the landscape, and one French colonial author from the early eighteenth century described native groups in the region as "wandering peoples of the seacoast" in reference to this phenomenon. These movements were influenced in part by French colonization, but they probably also reflect traditional practices of shifting settlement in response to deltaic cycles, periodic flooding, and changes in the courses of rivers and streams. The Chitimachas lived in areas along Bayou Teche, Bayou Lafourche and the Atchafalaya River and while some Chitimachas lived in villages or in dispersed settlements, community centers typically had "dance houses," which were settings for ceremonies as well as burial grounds. Prehistoric sites in southeastern Louisiana with earthen mounds probably represent the kinds of settings known to historic Chitimachas as dance houses (Rees, 2007). According to Chitimacha oral tradition and the Chitimacha iteration of the Earth Diver myth, the world was once covered with water, but a crawfish dove to the bottom, brought up some mud, and land suddenly spread out across the surface of the water (Judson, 1914). This oral tradition describes the development of the world, as it was and is known to the Chitimachas. It also describes natural processes of delta formation and the cultural process of moundbuilding. From this perspective, moundbuilding in southeastern Louisiana is related more to place-making and marking points of stability and permanence in a dynamic landscape than it is to the more competitive monumentality seen in the Yazoo Basin further north and further upstream.

Conclusions

The Native American landscapes of northwestern Mississippi and southeastern Louisiana demonstrate evidence of heterarchy and resilience, although in different forms and to different degrees. Within the Yazoo Basin, with its long history of Native American settlement and monumentality and its dense concentration of sites with monumental earthworks, sites with multiple large earthen mounds and plazas were geopolitical centers for regional communities with hierarchical settlement patterns and administrative structures. Viewed in synchronic perspective, there was no overarching dominant geopolitical center within the Yazoo Basin comparable to the status of Cahokia and Moundville within the Mississippian landscapes of the American Bottom, Illinois and the Black Warrior Valley of Alabama, respectively. Viewed in diachronic perspective, the mounded landscape of the Yazoo Basin illustrates heterarchy more than hierarchy, given periodic changes in the relative statuses of different mound centers and the communities associated with them. There is historic and archaeological evidence for pronounced hierarchy and centralization within chiefdoms present in the Yazoo Basin at the point of sixteenth-century Spanish contact; the landscape had been shaped by long-term cycles of flooding and management of fields and forests, but it was ultimately vulnerable to the aftershocks of Spanish contact. Further downstream, in and near the Mississippi River Delta of southeastern Louisiana, there are many mound sites, but the scale of moundbuilding is smaller than it is further north, and there are smaller numbers of sites with multiple mounds. We suggest that within the Mississippi River Delta, moundbuilding was an act of place-making that promoted community resilience in an environment in which water was abundant and dry land was scarce. We conclude by noting that many of the ideas that Carole Crumley has developed—including ideas about complexity and heterarchy—have much to contribute towards the continuing study of Native American monuments and societies in Mississippi and Louisiana and the different ways in which places and groups of people were ranked within the landscape and waterscape of the Gulf South.

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Notes

1 For discussions of monumental earthworks in the Lower Mississippi Valley dating to the Middle Archaic and Late Archaic periods, see Arco et al., 2006; Gibson, 1994, 2000, 2006, 2010; Kidder, 2012; Kidder and Sherwood, 2018; Kidder et al., 2004, 2017; Ortmann and Kidder, 2013; J. Saunders, 2010; R. Saunders, 1994.

2 For discussions of Woodland-period and Mississippi-period earthen mounds in Louisiana, see Brown, 2004; Johnson and Hayes, 1995; Kidder, 2002, 2004, 2007; Kidder et al., 2010; Lee, 2010; McGimsey, 2010; Neuman, 1984; Rees, 2010, 2012; Rodning and Mehta, 2017; Rodning et al., 2013; Roe, 2007; Roe and Schilling, 2010.

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Part III

Social, settlement and territorial dynamics of the European Iron Age

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8 Mapping British and Irish hillforts

Gary Lock and Ian Ralston

Carole Crumley's research into the Iron Age of France began with her doctoral thesis exploring the *oppida* of that country in relation to Julius Caesar's text on the *Gallic Wars* (1974). In this paper, which we offer in honour of her many contributions to comprehending locational and regional issues in the Iron Age (e.g. Crumley, 1979, 1987), we present some initial thoughts on our understanding of a key aspect of the settlement record of the neighbouring landscapes of Britain and Ireland. Our focus is the hillforts of these islands. A major and very visible category of monuments, they bear similarities to the enclosed sites found to the south across the English Channel and indeed widely in temperate Europe. Despite being a well-known site type (with their long histories of archaeological field survey and excavation), there is a case for a major re-assessment of these sites, underpinned by a fundamental reconsideration of their distributions, numbers and their similar primary characteristics. It is this that the Arts and Humanities Research Council-funded project, led by the present writers and now nearing completion, set out to achieve. We offer some comments on its underpinning rationale and its outcomes in terms of regional analysis.

In English Heritage's (now Historic England's) Monument Type Thesaurus a hillfort is defined as "a hilltop enclosure bounded by one or more substantial banks, ramparts and ditches;" and this definition indeed embraces many, but not all, of the examples considered in this study. For Scotland, contrastingly, the state agency Historic Environment Scotland's online thesaurus (accessible on its CANMORE system) states that "fort," rather than "hillfort" is the preferred term and offers "an enclosure, often located on a hilltop, bounded by one or more banks, ditches, ramparts or walls." Use for prehistoric and early historic sites' as its definition. Such slight variations in the descriptive vocabulary used can be replicated in numbers of ways across Britain and Ireland and is symptomatic of the fact that the recording and study of these sites has developed from local roots and remains founded within markedly different regional traditions of study. Thus, while syntheses of British and Irish prehistory would normally include a map or maps of hillforts or of particular hillfort traits, these might on occasion be at the scale of Britain or, less problematically, of Ireland, but never of the full British

Isles. Most such maps, however, are regional in scope, thus emphasizing the diversity that characterizes these sites, and the difficulty of adequately capturing the real-world settlement pattern as it survives archaeologically (cf Smith, 1977; Crumley, 1977).

Hillforts have long attracted the attention of antiquaries and of archaeologists, not least because in many areas they can still be represented by physically impressive earthworks (the aforementioned banks and ditches, whether found singly or in multiple systems) that can enclose some tens of hectares, although by far the majority are much less extensive. While there are numerous exceptions, their upland settings, in landscapes often given over to the raising of livestock and thus maintained as rough pasture rather than as woodland, mean that they are often readily visible and thus well-known sites, which articulate the landscapes within which they sit. Numbers of such forts are the targets of recreational hill walking, if not for their archaeological remains then for the prospects they offer over tracts of countryside or indeed townscape.

Towards the Atlas

In this essay we largely bypass the early study of these sites which embraced not only mapping, where they were often for example depicted from the mid-nineteenth century and subsequently on the large-scale maps of the state mapping agency, the Ordnance Survey, but also, particularly from later Victorian times onward, their examination by intrusive excavation, undertaken at a variety of scales. Before the outbreak of the First World War, however, we can draw attention to major works in which an overview of sites of this broad class, often setting them alongside other suites of earthworks for comparative purposes, appear. A few examples may be cited. For Scotland, David Christison's *Early Fortifications of Scotland* (1898) had its origins in the Rhind Lectures he delivered to the Society of Antiquaries of Scotland four years previously, and was built both on the data made available on the Ordnance Survey maps and through Christison's own fieldwork, which had begun with his mid-1880s consideration of the forts of Peeblesshire (Scottish Borders). In the Edwardian period, a *Committee on Ancient Earthworks and Fortified Enclosures* was set up under the auspices of the Congress of Archaeological Societies. Amongst other endeavours, it produced a classification scheme for earthworks in 1903, which was reproduced in a key text of that era, Allcroft's *Earthwork of England* (1908:21). This volume, its contents sometimes extending beyond the geographical scope of its title, was organized by chapters whose contents were structured around this classification. From the same period, the various Royal Commissions on Ancient and Historical Monuments for England, Scotland and Wales were established, their increasingly complex site descriptions and surveys in county inventory volumes complementing the work of the Ordnance Survey and that of other fieldworkers both professional and amateur. By the inter-War years, notably from the publication of Christopher Hawkes' seminal paper in 1931, the evidence gleaned from both the detailed inspection and the excavation of hillforts was increasingly deployed in syntheses of the British Iron Age, reaching an apogee in the cultural-historical scheme developed by Hawkes (1959) for England and Wales and extended northward into Scotland most notably in Piggott's and Feachem's studies of 1966. In their approaches, settlement evidence, including that for hillforts, was much used to define provinces and, more contentiously (Coles, 1969:779), sub-units termed regions into which the available data was classified.

Over this span, study in Ireland followed a distinctly different course. Early twentieth century engagement is marked by some of the same classificatory currents (e.g. Westropp, 1902), with Westropp thereafter turning his attention primarily to Irish promontory forts, particularly those distributed along its hard rock coasts. These form a category of site which has long been treated separately from hillforts in Ireland, in a manner that has not prevailed in Britain, again highlighting the variability of the classificatory schemes employed across Britain and Ireland. That said, the record for hillforts—and promontory forts—in Ireland has been swamped numerically by the evidence for ringforts; these were small, generally-circular enclosures broadly of the first millennium AD, which were estimated still—despite the impact of agricultural improvements—to number some 45,000 in 1995 (Stout, 1997:53 and fig. 10). The modern study of hillforts as a category of sites in Ireland may be dated to the first of the late Barry Raftery's contributions (1972: with distribution map, fig. 14), which at that stage only identified some 40 hillfort sites in total for the island. Although the numbers of sites involved are undoubtedly greatest in Ireland, a similar blurring of the boundaries in relation to potential overlaps with small sites is also apparent in south-west England in the case of rounds and in the case of raths in south-west Wales.

For over half a century, the key map which underpinned all considerations of the distribution of hillforts in southern Britain has been the *Ordnance Survey Map of Southern Britain in the Iron Age*, published in 1962 at a scale of 1:625,000 (ten miles to an inch) in a historical series of which the only survivors presently in print are *Ancient Britain* and *Roman Britain*. *The Southern Britain*... map depicted more than just the category of settlement sites now of interest to us, although these were the most numerous symbols on it. Lake dwellings and a variety of open settlements were included, as were both selected burial evidence and a range of artefact findspots. Critically, its mapping ceased at about 54° North, its limit running across northern England from the North Yorks Moors to the southern Lake District in Cumbria, but including the Isle of Man. There was never a directly-equivalent map for the North of Britain, although Ian Scott produced one just of the settlement evidence at 1:1,000,000 which was included in the end-pocket of the proceedings of a conference on the *Iron Age in Northern Britain*, published in the mid-1960s (Rivet, 1966). Scott's southern boundary was effectively on the Roman frontier as determined by

Hadrian's Wall between the valley of the River Tyne on the East westwards to the inner Solway Firth. There was thus a band some 50 km wide across northern England excluded from both maps; that this unmapped zone included the great North Yorkshire *oppidum* (a cognate class of Late pre-Roman Iron Age enclosed site) of Stanwick amongst other enclosed settlements intimates that the exclusion was serious.

Furthermore, the two 1960s maps organized the data they depicted differently. As has been mentioned, the North British map showed only settlement sites. All forts, hill- but also coastal and inland promontory-forts, are depicted using the same symbol, the only distinction drawn being if there was any evidence that the site enclosure had been vitrified, a process identified through the presence of melted and fused rocks as the apparent outcome of the destruction by fire of dry-stone enclosure walls which had been initially built with internal timber-lacing. Overall, however, the main distributional contrast is between regions wholly or dominantly marked by the open blue circles used to depict hillforts and those, generally in the west and north of the country, where the preponderance of site symbols is clearly of solid red circles, intimating the presence of a range of small, heavy-walled and generally circular structures, now including those generally termed "complex Atlantic roundhouses" (e.g. Romankiewicz, 2011), such as the iconic and distinctive broch towers which are entirely restricted to Scotland.

The *Southern Britain* map was considerably more ambitious. In its depiction of hillforts, black was used for those attributed to Hawkes' Iron Age "A" and "B" cultures, then believed both to have been responsible for fort construction, whereas sites of the latest arrivals, the "C" Belgic groups—generally *oppida* rather than hill forts—are in red. Purple was deployed for sites where there was considered to be representation of both the earlier and C, cultures, but—Bigberry outside Canterbury in Kent being one exception—this is hardly used for forts. The many examples without direct dating evidence were assumed to be attributable to Iron Age A or B and thus mapped in black. Two further characteristics were intimated by the selection of symbol. Whether the fort had a single bank-and-ditch or wall system (univallate) or whether it was multivallate—in essence at least bivallate or with even more enclosing works, was mapped and linked with contemporary views of the correlation between defensive styles and military attack—with multivallation believed to have been a corollary of the introduction of sling warfare. Also depicted was an indication of hillfort size, defined as the enclosed area within the innermost defences. Three size bands, expressed in imperial acres, were used: above 15 acres (c. 6ha), below 3 acres (c. 1.2 ha), and the intermediary 3–15 acres. No justification was proffered for these size bands (Ordnance Survey, 1962, 13), but they have proved to be very resilient, being reproduced in more recent distribution maps (e.g. Davies and Lynch, 2000: fig. 4.1 for Wales) including examples which extend their use over all of Britain (Harding, 2012: figs 1.1–1.3), while still fundamentally being based on the 1960s dataset of these sites.

The 1970s were marked by two individual projects designed to take forward the study of hillforts at a broad scale within, if not wholly across the extent of, Britain. James Forde-Johnston (1976) retained the Ordnance Survey "Southern Britain" territory as his geographical focus in a study based uniquely on the surface field evidence. This gave rise to a new typological classification of these sites. His preface (1976:i), however, makes plain that his original intention had been more ambitious—to consider all of England and Wales and to take into account too excavation evidence. The other products of that decade which underpinned the *Atlas of Hillforts* project were those of Mr. AHA Hogg, Secretary, that is to say Chief Executive, of the Royal Commission on the Ancient and Historical Monuments in Wales from 1949 until his retirement in 1973 (Briggs, 1981). Hogg, notably through his work on those of Wales, became the doyen of hillfort archaeology and founded the Hill-Fort Study Group, which has met annually since 1966 to consider these sites. In 1979, he published his index to British hillforts, which provided basic information from published sources and his own researches on the hillforts (and some lesser enclosed sites) of Britain; this was material Hogg (1979:1) had originally collected for "a map covering the whole of Britain and giving more information on areas than ... {the 1962 OS map}." Hogg's national mapping—the problems of which he acknowledged (1975:37)—was however limited to the crowded figures (1–3) accompanying the chapter on distributions and regional types in his 1975 popular *Guide*.

It is this fundamental issue of providing up-to-date distribution maps at reasonably compatible standards and at the scale of Britain and Ireland that the Atlas project and the extensive database which underpins it, seek to address. This is a necessary preliminary to the formulation of new perspectives on hillforts and their roles within insular pre- and proto-history. The database has been constructed by the examination of published sources, the National Monuments Records and local government service Historic Environment Records, leading to a critical review of records on hillforts, from well-known examples to those where the accessible field evidence may be much less clear-cut. Within available resources, opportunities for direct field observation have been limited. The project team set out to consider not only the surface evidence which was Forde-Johnston's focus, but also information derived from excavation and from the application of geophysical survey techniques, notably to hillfort interiors as in Wessex (e.g. Payne et al., 2006). Equally, it was already plain a generation ago that in some landscapes—such as East Anglia (e.g. Rickett, 1991: fig. 52)—sites cognate with hillforts in terms of their configuration and contents could still occur in low-lying situations as upstanding features; relatively little had then been achieved, however, to identify among the burgeoning records from aerial reconnaissance cropmarked hillforts within the agricultural lowlands elsewhere in Britain. While individual such sites have been excavated, usually as a result of catastrophic threats to them (e.g. Allen et al., 2009; Armit and McKenzie, 2013), the majority remain "unsorted" in the photographic records. The project researchers have also undertaken this task in order to identify further previously-unnoted hillforts.

Capturing diversity in the database

It is well-recognized in Britain and Ireland that hillforts comprise one—albeit extensive and varied—segment within a continuum of later prehistoric enclosed settlement, the characteristics of which vary considerably in the constituent parts of the islands. Given the unevenly-preserved and sometimes badly-eroded remains which survive across the British Isles, it will never be possible to identify a hillfort category, the membership of which does not include (or exclude) some contentious, marginal examples. Hillforts are a polythetic monument type and thus some standardization was deemed essential in building the project database. For this reason, the project adopted three criteria (of which at least two have to be satisfied) for a site to qualify for inclusion as a hillfort in the *Atlas* database. These criteria are:

Landscape prominence

While it is appreciated that—in the very different topographies present between (say) lowland Eastern England and the uplands of Wales—this concept embraces very considerable variation, sites to be included had to show some prominence within their local landscape, a judgement that was entrusted to our experienced researchers.

Scale of enclosing works

Again, allowing for damage and erosion, which can be very variable, whether at the individual site level or across more substantial sets of monuments, the calculation of the original significance of ramparts, ditches or walls is not always straightforward. The fundamental judgement used was that their scale had to exceed those of the demarcations of lesser enclosures that might, for example, simply delimit the site's boundaries or reduce the risk of ingress by wild animals. The same concept applies to entrances which, for hillforts, are often enhanced in a variety of ways and more grandiose than for smaller enclosures. In the case of unexcavated cropmark sites this criterion is particularly contentious since surface evidence is generally wholly unavailable. For cropmark sites we thus sought imagery indicating a ditch (or ditches) 4m or over in width.

Size of enclosed area

Neither is the selection of this measurement of the enclosed area within sites straightforward, particularly at the small end of the scale. After considerable debate, we selected 0.2 ha (2,000 square metres) as the minimum threshold for inclusion, enabling us to include many small upland sites in parts of west Wales or the Scottish Borders, for example, where they also satisfied at least one of the other criteria listed above. This size limit also lets us set aside the smaller cropmark enclosures visible in the aerial photographic records and numbers of small, heavily walled enceintes such as those of the duns, some of which may have been roofed structures, of the Atlantic North-West of Scotland. For Ireland, however, the numerous, generally circular, enclosures in the ringfort tradition, attributable in the main to the Early Medieval period, had to be excluded from our survey, given that the Heritage Council currently estimates that there are some 60,000 of them (Heritage Council, 2017). With internal diameters attaining up to 60m, and some with relatively substantial circuits of banks and ditches, an unknown but probably small proportion of them would exceed our thresholds, on size and scale of enclosure primarily and would thus have qualified as hillforts on the foregoing criteria, but practical considerations of timescale and labour forced us not to take them into consideration in this project. They thus unavoidably remain—at present, at least—set apart as a monument category.

There are none the less other categories of sites where even the small areal extent identified above might occasion problems were enclosed size to be operated as the unique selection criterion. One is the set of "vitrified forts" mentioned previously. These have been the subject both of wonder and of scientific analysis since their first description in the eighteenth century; and they have accrued a substantial literature (e.g. Ralston, 2013:143–163). Common in Scotland, but present elsewhere in the British Isles, it would be generally anticipated that the *Atlas* would include these iconic remains. The Atlas will indeed do so, albeit with the caveat that some examples normally included are by our criteria too small to qualify—they are, in Atlantic Scottish terms, duns.

The issue of anticipated *Atlas* contents in light of established descriptions also affects another group of forts, where again some examples fall below our size threshold. These are the Early Medieval hillforts of the West and North of Britain (e.g. Alcock, 2003) numbers of which are again very small—below our 0.2 ha size threshold—but which merit inclusion through the deployment of the other two criteria.

Based on the criteria outlined above, the database contains c.4,100 entries for individual hillforts. As is obvious from the foregoing discussion there are, as with much archaeological categorization, not least of earthworks, numbers of marginal cases which might or might not merit inclusion. Such "fuzzy" data is difficult to capture within a database consisting of pre-defined check list categories and free text fields, where the former underpin searches and, in this instance, mapping. To try to reduce these uncertainties at the margins we incorporated two reliability factors, since resources did not normally permit either field verification or extensive consultations on individual sites. This procedure allowed us to reach the view that a given site could not be classed as a hillfort in the Atlas because either there were issues with the quality of the accessible data about it or with the interpretation of that data. In such cases, sites would be marked as "unconfirmed" on the basis of either data or interpretation. In a smaller number of cases, available information was contradictory and such sites were coded as being "irreconciled" in terms of the available information and/or its interpretation. Removing all such sites allows us to retain a large kernel of 3349 confirmed sites that form the basis of the bulk of the analyses we have performed to date. Our database is designed to capture a more extensive range of key information about individual hillforts than has previously been possible. In total, there are four tables and some 120 fields, which are georeferenced and include administrative detail. Site characteristics extend from the nature and architecture of the enclosures, including associated features such as entrances, to the main features recovered from their interiors or which are visible on the surface or by remote sensing, such as evidence for internal buildings. Their landscape settings are characterized, as are the forms of their enclosures in relation to the local topography. Other fundamental data includes the measurement of the enclosed area (and we allow for variation through time in the use of individual sites, such that both enclosed area and the form of vallation may change, as in celebrated cases such as Maiden Castle, Dorset) and the maximum altitude within the site. Evidence for artefacts and ecofacts is collated and a summary assessment made, where evidence for dating is available, as to its quality. Since period descriptors such as "Early" or "Middle" Iron Age vary in their definitions across Britain and Ireland and the impacts of Rome too were geographically variable, we have adopted a simplified system of four hundred year blocks from 800–400 BCE onwards, to indicate the timescales of individual sites where these are known.

In due course the database will be publicly accessible online, but our aim is to collate and check as far as is feasible the enhanced range of information about individual sites that A.H.A. Hogg had hoped to achieve a generation ago. While much of this task was undertaken by project staff from online and/or published sources, we also benefitted from inputs from the public through a successful Citizen Science initiative directly associated with the project.

Outcomes

Rehearsal of some of the criteria the Atlas team used in the construction of the database goes some way towards explicating the differences between the numbers of hillforts now recognized in Britain and Ireland compared with previous surveys, but to this factor must be added new discoveries, particularly through aerial reconnaissance of the arable lowlands and, in more modest numbers, by continuing ground survey. Of 1,478 hill-forts regarded as "confirmed" within Scotland for example, 272 were discovered uniquely through cropmarks (approximately 18% of the total), whereas for England some 80 such sites, concentrated in the north-east of the country, represent an addition of only about 8% to the total known. Ireland displays a very different pattern of evidence. Cropmark hillforts remain very rare on the island: setting to one side the coastal promontory forts, overall numbers of largely upstanding forts have nonetheless continued to increase, more than doubling in number to approximately 100 since Raftery's survey of 1972, as the monument type has attracted increasing attention (O'Brien, 2016 and fig 7.1) and this despite the fact that the unsolved ringfort issue means that a considerably larger minimum size threshold of 1 ha is operated for the inland sites of that island.

In total, the numbers of hillforts known have increased for all the constituent countries of the study area, albeit considerably differently in proportional terms. Areas in which the operation of our "confirmed interpretation" criterion has contrastingly resulted in a decrease in the total numbers of sites accepted into this category compared with recent overviews are rare and are focused on the western seaboard, in Cornwall and Pembrokeshire for example. Overall, however, the distribution of sites is markedly non-random, with notable concentrations in southern Scotland and the Welsh borderlands. While there are markedly fewer sites in Ireland, the distribution there too is far from random. In general, these patterns would strengthen the view that if there are regions and periods within later prehistory for which hillforts form a significant part of the settlement tissue, there are others, notably in parts of eastern Britain, where the opposite prevails and hillforts are either rare or absent. This differentiation is even more marked in Ireland, for which recent work emphasizes that most excavated hillfort sites are in fact datable to the Late Bronze Age (O'Brien, 2016).

Another characteristic that is challenged by revisiting and extending the dataset is the view that larger, sometimes more complex sites, often termed "developed hillforts" are predominantly a feature of a broad zone extending north-west from south-central England to the north-eastern Welsh Marches. Whilst the enclosed area is obviously only a very partial proxy for complexity together with complex entrances and multivallation, characteristics which could also be analysed and mapped, it is noteworthy that, while the foregoing hillfort zone indeed contains numbers of these sites, a simple ranking of the one hundred largest sites in the project database demonstrates that the 69 of these sites within England and Wales are in fact more widely distributed within these territories. Further, while large sites (in this case exceeding 10.1 ha) remain rare in Scotland, 26 examples are to be found in Ireland. Spinans Hill 2 at 130 ha encloses the largest area for any confirmed site in the database and, of the ten biggest sites, four (including two states of Tinoran, also in County Wicklow) are in the Republic. Limited excavation by University College Cork at the latter site in 2015 established the Later Bronze Age origins of its two outermost enclosure lines (O'Brien, 2015).

Promontory forts form another constituent of our database worthy of initial comment here. Some 969 examples are included in this survey, representing approximately 29% of confirmed hillfort sites in Britain and Ireland. Perhaps unsurprisingly, given its many offshore islands and long,

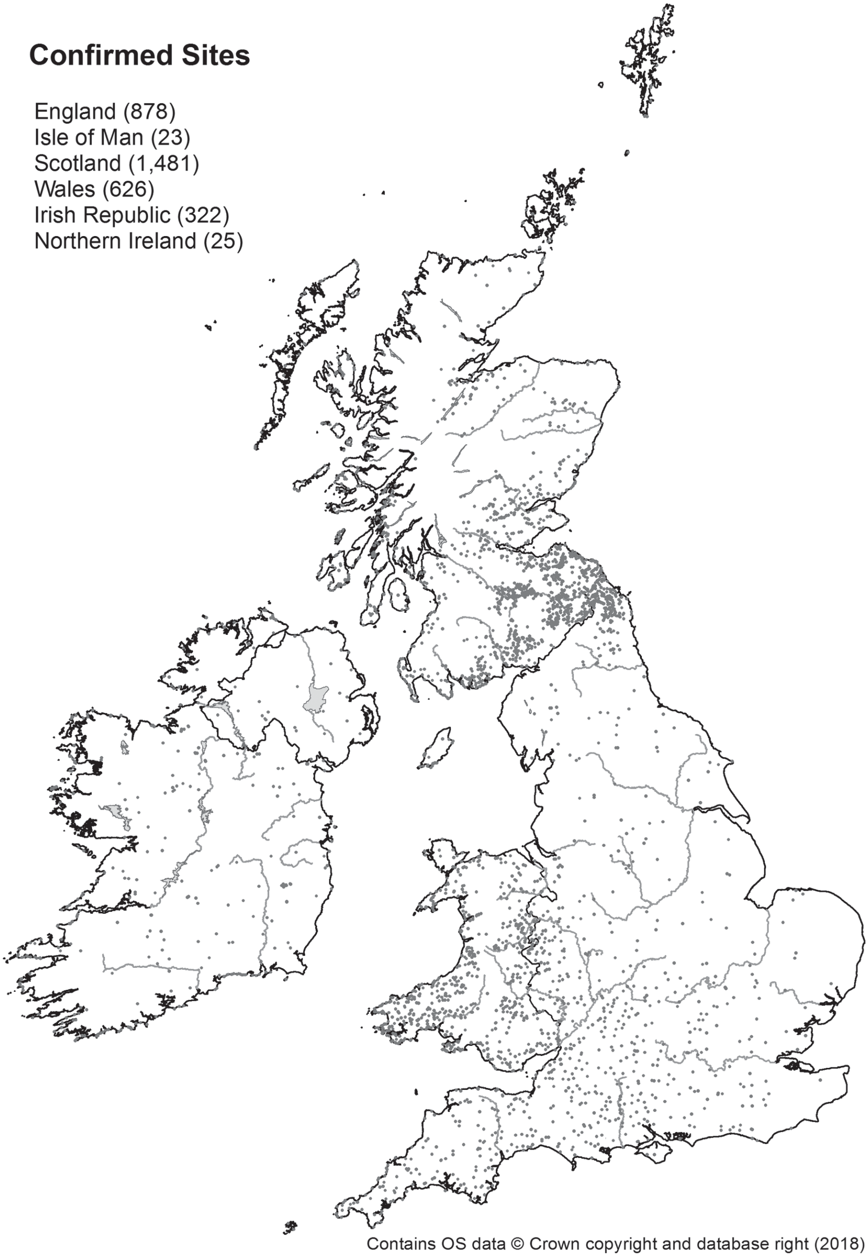
Confirmed Sites
England (878)
Isle of Man (23)
Scotland (1,481)
Wales (626)
Irish Republic (322)
Northern Ireland (25)
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Figure 8.1 The Atlas distribution of all confirmed hillforts in Britain and Ireland. Map created using OS OpenData and free spatial data available from DIVA-GIS (http://www.diva-gis.org/Data).

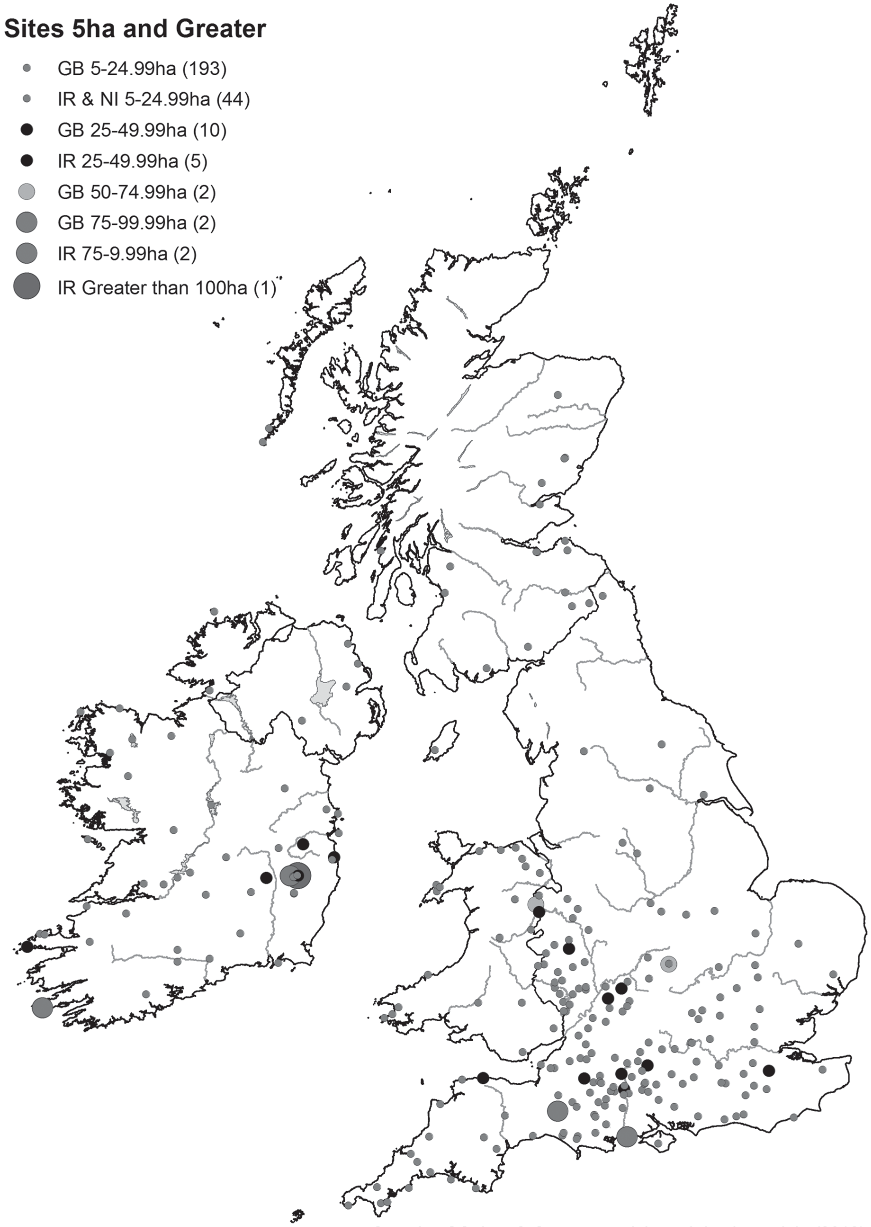
Sites 5ha and Greater
GB 5-24.99ha (193)
IR & NI 5-24.99ha (44)
GB 25-49.99ha (10)
IR 25-49.99ha (5)
GB 50-74.99ha (2)
GB 75-99.99ha (2)
IR 75-9.99ha (2)
IR Greater than 100ha (1)

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Figure 8.2 The Atlas distribution of all confirmed hillforts in Britain and Ireland over 5ha in extent. Map created using OS OpenData and free spatial data available from DIVA-GIS (http://www.diva-gis.org/Data).

sinuous and frequently hard-rock coastline, Scotland has the most examples (indeed in the Northern Isles promontory forts are the sole sub-category of hillforts whose presence is confirmed) but, overall, only some 60% of its 397 promontory forts are positioned on the coast, a much more significant number than previously appreciated occupying interfluves or similar inland locations notably in the Greater South-East of the country and in eastern Scotland north to the Highland Boundary fault line at the Mounth. The coast of Pembrokeshire is also well-known for its coastal promontory forts and south-west Wales has a noteworthy concentration of forts in inland promontory settings too. Ireland's coastal promontories are for the most part a characteristic of its southern and western seaboards and the prevailing view is that they are dominantly a characteristic monument type of the early-to-high medieval periods, albeit the amount of assembled supporting data is yet relatively minor. If some, such as Larrybane in County Antrim, dug by Gordon Childe in 1936, were indeed occupied or reoccupied then, others provide some evidence for use in the first millennium BC, a pattern repeated on the margins of the British mainland. As with large hillforts, Ireland has disproportionately many of the bigger promontory sites, including 13 (25%) of those enclosing more than 5 ha. These include the large, multivallate Drumanagh, Loughshinny, County Dublin, a likely emporium on the Irish Sea coast with associated Roman artefacts. In contrast, large coastal promontory forts are absent along the entire eastern seaboard of Britain, with the next cohort in size terms (under 5 ha in extent) being restricted on the east coast to the southern coastline of the Moray Firth, as at Burghead (Moray), set on its prominent headland. In England, the bigger coastal promontory forts are, perhaps unsurprisingly, a feature

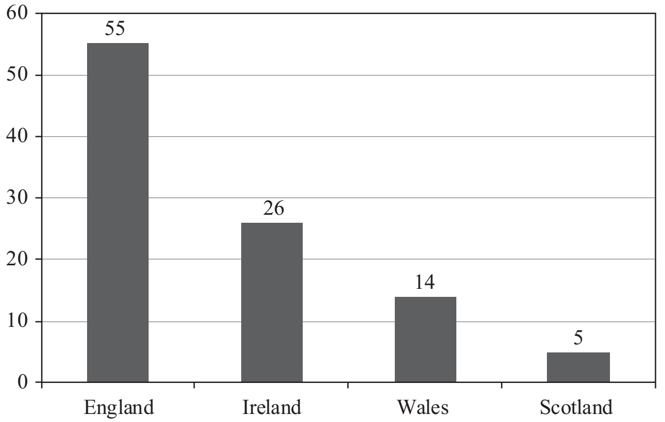

Figure 8.3 Bar-graph by country of the one hundred largest hillforts in Britain and Ireland determined by each hillfort's enclosed area (based on Atlas data including multiple states of the same fort). In this illustration the entire island of Ireland is considered as Ireland.

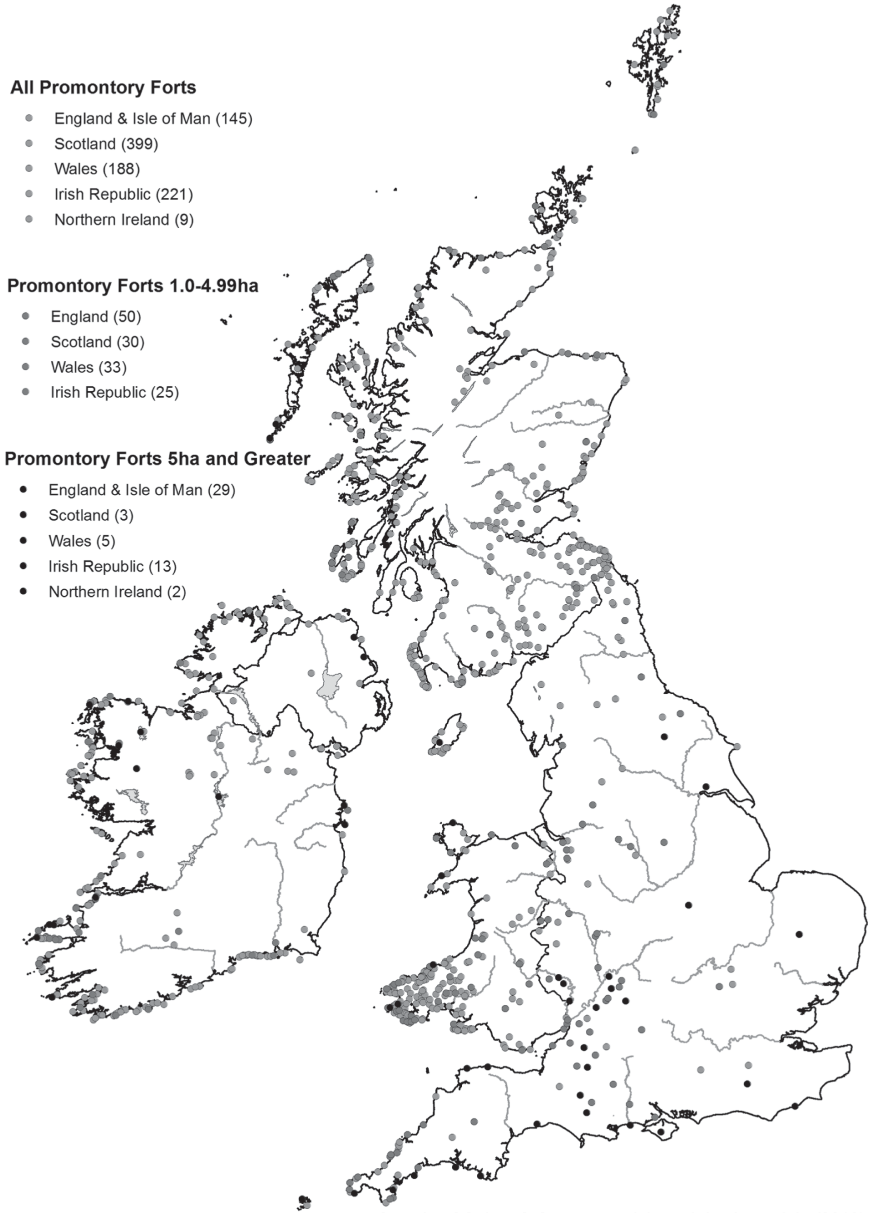
All Promontory Forts
● England & Isle of Man (145)
● Scotland (399)
● Wales (188)
● Irish Republic (221)
● Northern Ireland (9)
Promontory Forts 1.0-4.99ha
● England (50)
● Scotland (30)
● Wales (33)
● Irish Republic (25)
Promontory Forts 5ha and Greater
● England & Isle of Man (29)
● Scotland (3)
● Wales (5)
● Irish Republic (13)
● Northern Ireland (2)

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Figure 8.4 The Atlas distribution of all confirmed promontory forts in Britain and Ireland, highlighting examples above 1ha and above 5ha in extent. Map created using OS OpenData and free spatial data available from DIVAGIS (http://www.diva-gis.org/Data).

of the south Channel coast and the South West of the country more generally. Further illustrating the diversity of this class of sites, the most extensive coastal promontory sites in Scotland are on the Outer Hebridean islands of Mingulay and Vatersay, respectively at Dun Mhiughlaigh (10.4 ha) and Biruaslum (9.8 ha), both univallate and the former a long, narrow, high-cliffed promontory jutting into the Atlantic and a prime candidate to be interpreted as having held a non-domestic, even non-defensive, function.

Otherwise, the topographic setting of promontory forts—especially those on the cliff-girt coastal edge—means that many qualify for inclusion in the Atlas database on the basis of this criterion, and of the strength of their enclosures, regardless of enclosed area, given the classificatory system outlined above. Some 347 examples (approximately 35% of the total and of which the vast majority are in Scotland or the Irish Republic) are thus below 0.2 ha in enclosed area, with noteworthy concentrations in diverse places from North Shetland to the Rhinns of Galloway in Scotland, in Pembrokeshire (but relatively rarely elsewhere in Wales) and along the coastal parts of Ireland which are marked by promontory forts of all sizes, but where such small sites are rare inland. Contrastingly, despite the connotation of smallness often associated with the term "cliff-castle," frequently used for promontory forts in SW England, this smallest set of sites is all but absent there.

This brief excursus into promontory forts—deployed here simply as an example—thus shows something of the extra and now-quantifiable variability that is present in this set of sites across Britain and Ireland and which is susceptible to much further analysis both at national and regional scales. The patterns could be nuanced, for example, by cross-referencing their enclosed sizes with their vallation, which shows for example, that big multivallate coastal promontories such as Drumanagh, considered previously, are exceedingly rare in the islands. It should also be remarked here that Atlas publication will in due course allow fuller expression of the caveats that need to be entered, for example that coastal promontories, susceptible to centuries of marine erosion since their use, highlight the fact that internal areas measured today may in some cases be considerable less than was formerly the case.

What is also apparent from even the most cursory examination of the database is that some aspects of our information about hillforts have been much more susceptible to change as field survey and excavation have been taken forward. In the case of their fortifications or enclosures, for instance, the evidence for the presence (or, more often, the former presence) of timber in their construction, whether as a component of walls as in timber-framing with vertical elements of timber-lacing with transversals and longitudinals or in the form of free-standing palisades or stockades, continues to increase relatively rapidly. Contrastingly, some other traits are much more stable in their numbers. British and Irish examples of the emplacement of irregular rows of jagged upright stones (usually termed *chevaux-de-frise*) have hardly increased, perhaps because of the distinctiveness and high visibility of this characteristic feature, even if its function remains debated. One notable exception to this rule is the recovery of an example preserved under a later rampart at Castel Henllys (Pembrokeshire) and its excavator, Harold Mytum (2013) cites a further recent similar discovery in that county at Black Scar coastal promontory fort.

Conclusions

The process of creating, and then interpreting, the information within the database through maps and by other means is currently underway and we anticipate being able to recognize further new patterns in the data and seeking interpretations for these. While the nature of the project funding is time-limited such that the project archive will be static, the data we have gathered will continue to be available as CSV files through the Archaeology Data Service at York and will also be fed back to the national and local authority Historic Environment Records on whose records we initially drew. The data will thus continue to be available for re-use through these organisations. There will also be an online Atlas database housed at Oxford with extensive interactivity: publicly accessible, this will not only furnish information on individual sites, but allow individuals to produce their own maps and diagrams and download data for re-use.

As we anticipate that groups and individuals, amateur and professional, will use the database to help to plan visits to hillforts, we are also planning to add other self-maintaining features to enhance the official products of this project. One currently in development via Wikimedia is to set up an image bank to which people can contribute, linking their digital pictures to the database through the Atlas number of each hillfort. The intention too is that core information on individual sites will also be made available through Wikipedia.

In sum, our intention is that a key legacy of the Atlas project will be to make available standard information on some four thousand sites within one of the major classes of field monuments of the last millennium BC and first AD. This information should identify further locations for survey and invasive excavation and also contribute to new formulations within later insular prehistory. New perspectives on regionality, on change through time and across space, on networks of contact and influence, on hierarchy and heterarchy, to all of which Carole Crumley has drawn attention, should be feasible.

Note

This paper was revised in January 2018 when analytical work was still under way. The *Atlas of Hillforts of Britain and Ireland* is now freely accessible online at https://hillforts.arch.ox.ac.uk

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9 Humanizing the western Cantabrian Mountains in northwestern Iberia

A diachronic perspective on the exploitation of the uplands during Late Prehistory

David González-Álvarez

For too long upland areas such as the Cantabrian Mountains in northwestern Iberia have been regarded as Europe's last "natural landscapes" and conceptualized as pristine areas where human impact is barely noticeable. From this perspective, mountains are mainly considered as a refuge for nature, while urbanized or industrialized areas in plains or coastal zones appear as their opposites. Lowlands are perceived as the arenas for the maximum development of culture and civilization. In contrast, uplands are often viewed as "marginal" landscapes, like deserts or wetlands, where wildness and barbarism predominate.

Widely held by the general public, this view has also impacted the way archaeological research has engaged with mountain environments. Most of the traditional narratives in our discipline assumed that historical and cultural processes reach the uplands only in limited and subtle ways (Walsh et al., 2006). The majority of European archaeological investigations have focused their attention on "central" areas (those with gentler topography and more monumental architecture or outstanding material culture). Therefore, the biographies of mountainous landscapes are not so well understood in diachronic terms. General narratives built mainly in the lowlands were extended to upland areas mediated only by assumptions about the latter's supposed marginality. Mountains remained out of broad archaeological discussions, except when considered as mere "borders" of cultural areas or human groups, following historical-cultural approaches. However, discussing the archaeological evidence from the Cantabrian Mountains in a close dialogue with paleoenvironmental and ethnographic datasets allow us to draw a more detailed picture of the biographies of alpine and subalpine landscapes.

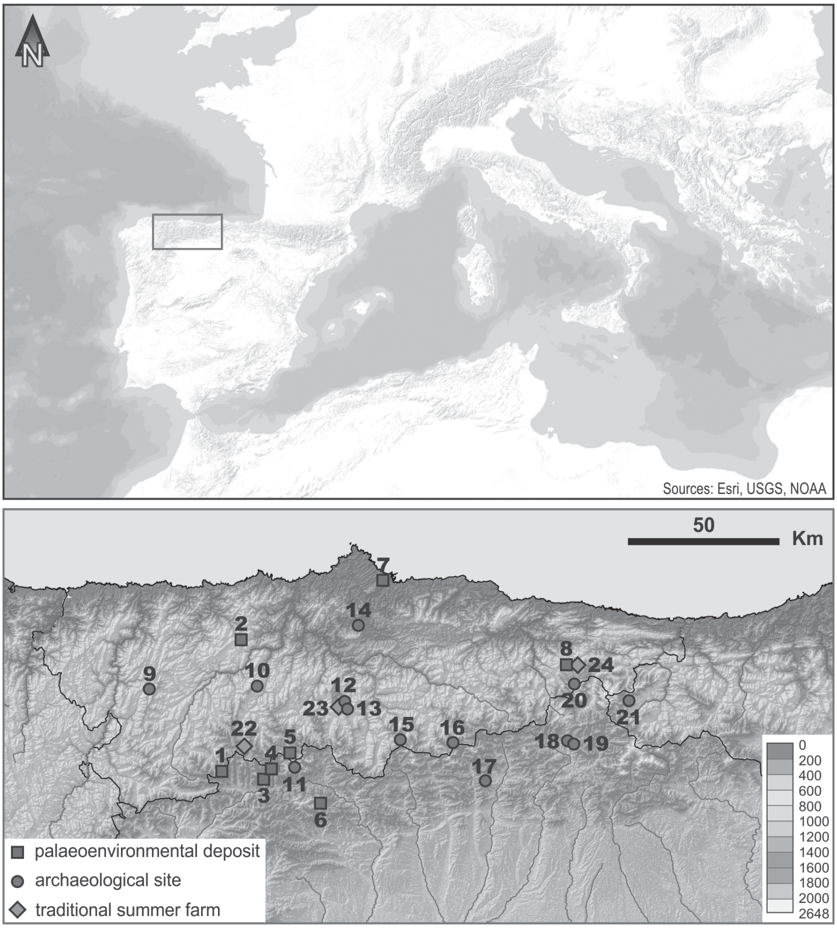
On the other hand, since mountainous areas were not—in general—as affected as urban areas by contemporary transformative processes like industrialization, European uplands got the attention of ethnographers and anthropologists who studied "traditional" and sustainable local communities' ways of life. Ethnographic analogies shaped a broad view of the conservative cultures of mountain communities, which came to predominate historical and archaeological narratives. These narratives easily fall into presentism and atemporality.

Nevertheless, mountain landscapes in Europe are in fact mostly a result of cumulative long-term human interactions with the environment and human groups throughout history have exploited even the more remote upland areas on the continent. Upland landscapes constitute palimpsests that archaeologists are able to read. For example, paleoenvironmental and geomorphological studies carried out at upland peat bogs and mountain lakes prove the pre-eminent role of anthropogenic agents in the transformation of these landscapes throughout the last few millennia (López-Sáez et al., 2006; Miras et al., 2007; Mocci et al., 2008). Moreover, recent archaeological research in mountain ranges such as the Pyrenees (Gassiot et al., 2017; Palet et al., 2007; Rendu, 2003) or the Alps (Carrer, 2013; Walsh et al., 2007) is proving the dynamism of these areas early in Late Prehistory. However, there are still mountain areas, such as the Cantabrian Mountains, which are archaeologically underexplored. The current project explores the potential for archaeological and ethnoarchaeological research in the area (González-Álvarez, 2016; González-Álvarez et al., 2016).

Aims

This paper provides an archaeological account of the anthropization processes in the western sector of the Cantabrian Mountains (Northern Iberia) during the five millennia between the emergence of agriculture and animal domestication (ca. 4800 BC) and the Roman conquest of the area (late first century BC) (Fano et al., 2015; López-Merino et al., 2010; Costa-García, 2018). Historical Ecology (Armstrong et al., 2017; Crumley, 1987, 1994) and landscape archaeology (Criado, 1999; David and Thomas, 2008) provide the theoretical framework for exploring the available archaeological and paleoenvironmental datasets for this region and support a diachronic interpretation of its cultural landscapes. Rather than focusing on single events or sudden changes, Historical Ecology, developed by authors such as Carole Crumley (1987, 1994), analyzes gradual transformations and cumulative continuities in order to unveil the cultural factors shaping relationships between societies and their surrounding environs. Using archaeological data, I study the settlement patterns and subsistence systems deployed by local communities in the Cantabrian Mountains and I compare these with available paleoenvironmental datasets.

Such a comparison helps assess human's environmental impact on the uplands, but distinguishing between natural and anthropogenic changes in the landscape is sometimes very difficult (Marignani et al., 2017). Ethnographic accounts of the traditional exploitation of upland areas, in the Cantabrian Mountains and elsewhere, do provide analogies that can assist archaeological interpretations of human agency in such dramatic environs. In light of the data considered, this paper also reflects on the cultural and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Sources: Esri, USGS, NOAA

Figure 9.1 Location of the study area and the sites mentioned. Palaeoenvironmental datasets: 1: Ḷḷeitariegos; 2: La Molina; 3: El Castro; 4: La Mata; 5: El Vaḷḷe; 6: Laguillín; 7: Monte Areo; 8: Enol. Archaeological sites: 9: Os Castros, Samartín del Valledor; 10: Las Corvas; 11: Las Verdes; 12: L'Aramo copper mines; 13: La Mata'l Casare; 14: La Torca'l Arroyu; 15: El Mayéu Busián; 16: Puerto Gumial; 17: La Braña-Arinteros; 18: El Espertín; 19: La Uña; 20: Jou Santo; 21: La Calvera and Peña Oviedo. Traditional summer farms: 22: La Pornacal; 23: Los Veneros; 24: Belbín (author).

social processes involved in the domestication of the upland landscapes particularly during Late Prehistory.

The Cantabrian Mountains

The Cantabrian Mountains (*Cordillera Cantábrica*) are located in the Northwest of the Iberian Peninsula. This mountain range runs parallel to

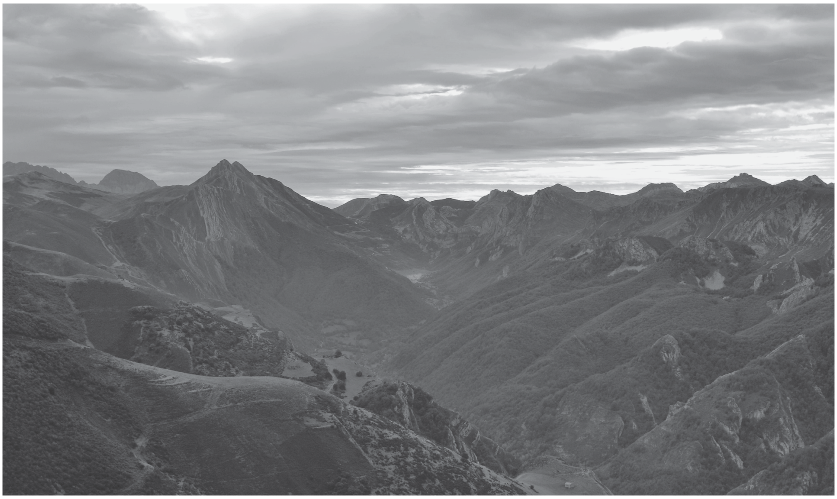

Figure 9.2 The dramatic topography of the Cantabrian Mountains conditions the relationship that local communities establish with upland environs, as is noticeable in this picture of the upper section of the Saliencia valley in Somiedu, Asturias (author).

the coast with its maximum altitude at 2648 MASL (meters above sea level) in La Torre Cerréu, at the border between Asturias and León.

The northern slopes are very close to the Atlantic Ocean, while the southern slopes face the plains of Central Iberia with an elevation of around 900–1,000 MASL. An outstanding geographical unit, the mountains both limited and enabled communication between different regions of northwestern Iberia. On the one hand, the complex topography, the high altitudes and the extreme weather conditions during winter complicated human movement across the mountains. On the other hand, the importance of seasonal grasslands in the uplands attracted shepherds from both sides of the mountain range to graze their herds for part of the year (González-Álvarez et al., 2016) and these movements enhanced cultural, social and commercial interactions (Vázquez-Varela, 2001).

Villages in these mountains are now located mid-slope in the northern valleys of Asturias (García-Fernández, 1988), while on the southern slopes of León they occupy the bottom of much wider and higher valleys (Gómez-Gómez, 2006). Seasonal complementarity in the agrarian exploitation of both the lower sections of the valleys for agricultural purposes and the upland pastures for extensive pastoralism during the summer generated subsistence systems rooted in vertical mobility, which have been developed since the Neolithic (de Blas, 2008b; Díez-Castillo, 1996–1997). However, the settlement patterns of the currently inhabited villages in these mountains can be dated back only to the Early Medieval period (Fernández-Fernández, 2017; Fernández-Mier, 2011; Gutiérrez-González, 1985), although there is evidence for peasant-inhabited open settlements in the Roman period (Fernández-Mier and González-Álvarez, 2013; Marín and González-Álvarez, 2011).

As noted above, the Cantabrian Mountains only recently become a focus of archaeological research concerning Late Prehistory and data is so far limited. The development of heritage inventories by regional governments, investigations on Megalithism (Arias et al., 1995; de Blas, 1997; Díez-Castillo, 1996–1997) and consideration of Prehistoric copper mining (de Blas, 2014) constitute the core of our knowledge. A few isolated finds (de Blas, 1983; Fernández-Manzano, 1996) and unexpected prehistoric discoveries resulting from historical archaeology projects (Camino and Estrada, 2012; Fernández-Mier et al., 2014) complete the existing data. Compiled, this information produces a broad but incomplete image that demands more archaeological research that incorporates perspectives from recent investigations in other European uplands. The evidence to date allows us to say the following about the various periods under investigation.

Mesolithic and Neolithic: the earliest anthropogenic impact in the uplands

While the presence of Mesolithic groups is much better known in coastal areas of Asturias and Cantabria (Fano, 2018), the Western Cantabrian Mountains were also visited by these hunter-gather groups, as is shown in the archaeological datasets from upland sites like the rock shelter of La Calvera in Cantabria (Díez-Castillo, 1996–1997:81–88), the caves of La Uña and El Espertín in León (Neira et al., 2006) and the exceptional Mesolithic burials of La Braña-Arinteros in León (Vidal and Encina, 2010). Although Mesolithic groups did not produce a persistent footprint on the upland landscapes, a few early and discontinuous transformations in the vegetation cover have been revealed by some natural palynological deposits (Muñoz-Sobrino et al., 2005:384). These might be related to the minor anthropogenic impact produced by Mesolithic communities, but further archaeological research is needed to identify patterns in such evidence.

Around 6000 BP, agricultural and herding activities were introduced in northwestern Iberia by Neolithic communities (Fano et al., 2015). The persistent humanization of the Cantabrian Mountains began then (Cubas et al., 2016) with a slight delay in the uplands (Díez-Castillo, 1996–1997; González-Álvarez, *in press*). By contrast, dates for cereal cultivation in coastal areas or the lower valleys were earlier (López-Merino et al., 2010; Peña et al., 2005). The adoption of agriculture and herding activities required deforesting large tracks of land for pasturage and crops. This changed the relationships established by human groups with their surrounding environment and shaped some of the first detectable anthropogenic transformations of local landscapes.

Megalithism is one of the traces traditionally linked to the consolidation of the Neolithic in the study area (Arias et al., 1999; de Blas, 1997). The presence of Neolithic groups is materialized through megalithic burial mounds, which could be understood as anthropogenic modifications of the landscape itself (Scarre, 2002) and as a process of transforming "space" into "place" (Chapman, 1988). These monuments would act as topographic markers in the domestication of the landscape or distinguish non-agrarian sacred places and they may also be interpreted as communal signs for the links between the Neolithic communities and specific territories.

The location of these landmarks reveal some interesting aspects of the spatial grammar of Neolithic landscapes, since they are quite often related to mountain passes, natural routes or the most visually prominent points for movement across the uplands (Criado and Mañana, 2003). Also, many burial mounds are linked to seasonal pastures and suitable zones for establishing summer farms in the uplands. This pattern can be linked to the mobile strategies deployed by Neolithic shepherds who took advantage of the different biotopes that can be found within short distances of each other in the Cantabrian Mountains.

Unfortunately, archaeological evidence for Neolithic settlements is scarce, partly due to both successive geomorphological and anthropogenic processes that have hidden or even erased potential sites of this period. Dated to sometime in the fourth millennium BC and only recently explored, the domestic structures found in Las Corvas (Balmonte de Miranda, Asturias) appeared underneath almost two meters of agrarian sediments (González-Álvarez, *in press*).

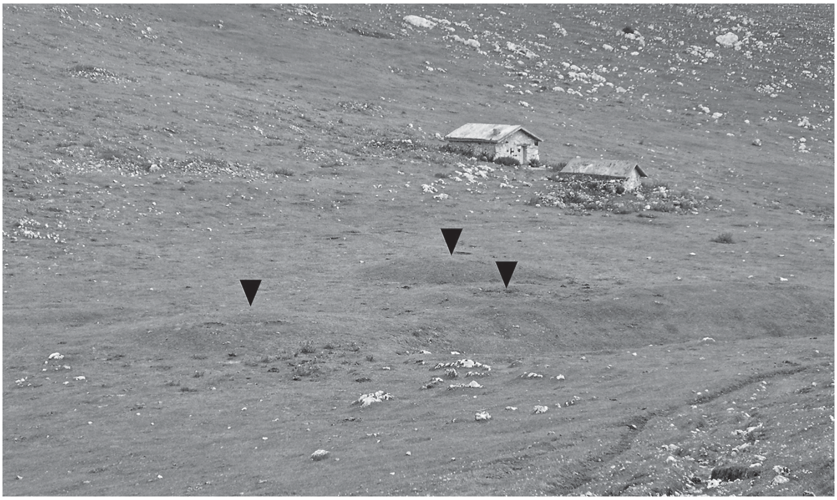

Figure 9.3 The summer farm of Los Veneros in L'Aramo massif is a good example of the several types of seasonal sites recognizable in the Cantabrian Mountains. Here, Late Prehistory burial mounds coincide with contemporary pastoralist areas (author).

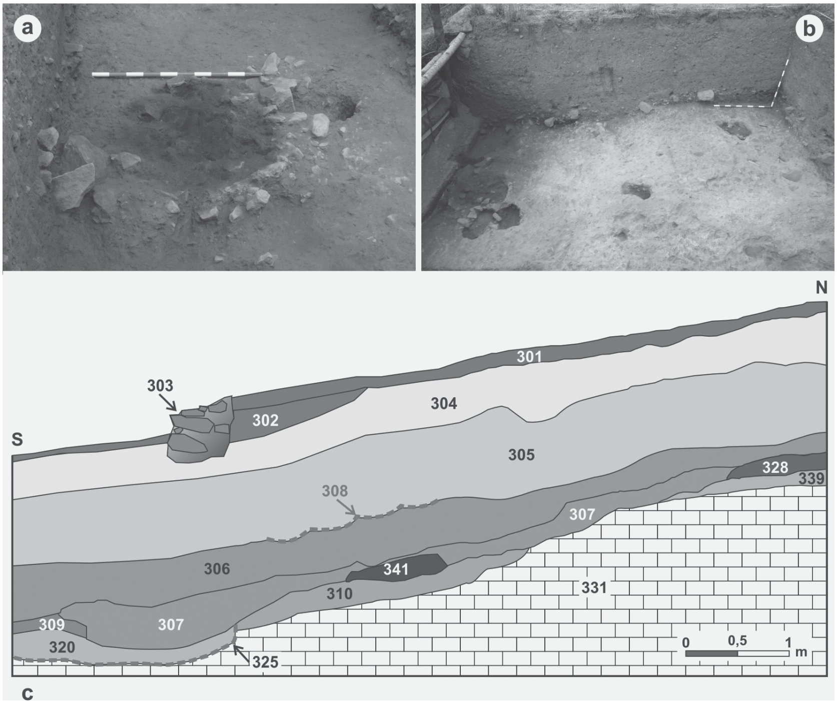

Figure 9.4 Modern and agricultural layers hid domestic structures from the Neolithic occupation of Las Corvas in Vigaña (Balmonte de Miranda, Asturias): (a) domestic hearth 309; (b) Neolithic hut negative contexts and domestic hearths; (c) stratigraphic profile showing the site's long Neolithic sequence (author).

Likewise, slope erosion revealed archaeological deposits of the 3rd millennium BC in the Torca'l Arroyu chasm (at Llanera in Asturias) coming from currently disappeared open air occupational layers in the surrounding area (Jordá-Pardo et al., 2007). Rescue archaeology and archaeological surveillance of forestry activities and of infrastructure development (such as wind farms, roads or pipelines) has been poorly integrated into management models in the area. Therefore, we have probably lost several opportunities to investigate late prehistoric sites in the study area beyond the more topographically obvious megalithic burial mounds (González-Álvarez, 2010). The already known occupational sites, such as Las Corvas or Peña Oviedo (Liébana, Cantabria), can be interpreted as recurrent points for the establishment of itinerant communities during the Neolithic. The occupation of these sites seems to be limited to a few years in relation to the decrease of soil productivity, after which the communities would move to other suitable locations nearby and reoccupy previously inhabited places, as we suspect at Las Corvas (González-Álvarez, *in press*). Taking advantage of landscape verticality, itinerant settlement patterns in the Cantabrian Mountains had a twofold mobility cycle related to long-term extensive agricultural strategies and seasonal movements to provide pasture for domesticated animals.

While the earliest evidence of cereal cultivation in coastal areas derives from the fifth millennium BC in the Monte Areo peat bog (at Xixón, Asturias) (López-Merino et al., 2010), palynological data from the Cantabrian Mountains show a much later spread of agriculture and herding activities. For example, anthropogenic manipulations of the landscapes in Asturias around the Molina peat bog at Salas (650 MASL) and Enol Lake at Cangues d'Onís (1070 MASL) date to around 4,000 cal BC (López-Merino et al., 2011; Moreno et al., 2011). We could think the anthropization process suggests Neolithic groups progressively climbed higher in the mountains throughout the period. However, the spatial distribution of the earlier evidence for anthropogenic environmental change does not meet that simplistic pattern. Thus, we find palynological sequences in El Vaḷḷe lake (at Somiedu in Asturias) at 1570 MASL (Allen et al., 1996; Mckeever, 1984) or from the peat bog in Ḷḷeitariegos (at Viḷḷablino in, León) at 1700 MASL (Fombella-Blanco et al., 2003), showing no clear anthropization signals until the end of Late Prehistory. In contrast, nearby palaeoenvironmental datasets such as El Castro lake (Viḷḷablino, León) at 1317 MASL and La Mata paleo-lake (Cabrillanes, León) at 1500 MASL provide proof of anthropogenic pressure since the 3rd millennium BC (Jalut et al., 2010). In summary, we should perhaps think of the regional spread of Neolithic livelihoods in the Cantabrian Mountains as best represented by a patchwork pattern. This irregular spatial distribution in the uplands could be connected to the region's relatively small populations and to a later adoption of Neolithic traits. Also, we should not disregard the probability that local groups of hunter-gatherers resisted adopting herding and farming practices in ways that suggest more nuanced, rather than linear, evolutionary developments towards more complex and hierarchical societies in Late Prehistory (Parcero and Criado, 2013). Complementary exploitation of the lowlands and the uplands through seasonal hunting, gathering and herding activities at different altitudinal areas could explain the diverse anthropization of the study area.

Bronze Age: mining and the expansion of agrarian economy

Despite limited archaeological research in northwestern Iberia, it is broadly assumed that the livelihoods of the Bronze Age groups were not so different to the Neolithic communities regarding settlement patterns and subsistence strategies (Arias and Armendáriz, 1998; Méndez, 1994). However, the human impact through agriculture, pastoralism and mining increased the anthropogenic pressure on the environment in the Western Cantabrian Mountains. Archaeological evidence may inform us about a growing territorialization of the social and productive landscapes throughout this period, but some authors have emphasized the refractory nature of Western Cantabrian communities to external innovations during the Bronze Age (de Blas, 2000; Marín, 2011).

A cultural footprint on the landscape became clearer as the spread of agriculture and herding activities reduced forested areas in the uplands (López-Sáez et al., 2006). This process is particularly clear in some paleoenvironmental datasets such as Laguillín lake (at Riello in León) (García-Rovés in Carrión-García, 2012:380) or Enol Lake (Moreno et al., 2011:344), where forest suffered a great reduction throughout the 2nd millennium BC. The strength of the anthropization process in the Western Cantabrian area also resulted in landscape diversity, with coastal zones and the lower valleys developing more varieties of agrarian mosaics due to the cultivation of new crops and the extension of herding areas (Carrión-García et al., 2010:468; López-Merino et al., 2011). Moreover, the exploitation of copper ores and mining activities developed by the end of the 3rd millennium BC in the Cantabrian Mountains (de Blas, 2014). Along with the development of metallurgy, mining activities produced a noticeable atmospheric metal pollution that can be detected in some peat bogs (Comendador, 1999; de Blas, 2008a; Martínez-Cortizas et al., 2016). Isolated archaeological data gathered in alpine and subalpine zones, such as levels with charcoal documented in El Mayéu Busián (at Ḷḷena in Asturias) at 1500 MASL (Camino and Estrada, 2012), could be interpreted as seasonal occupational levels during the Bronze Age. Also, the few palynological data collected from archaeological sites allow us to establish links between the construction of megalithic monuments such as the Early Bronze Age burial chamber of La Mata'l Casare (at Quirós, Asturias) at 1,250 MASL (de Blas, 1994) and the increase of indicators for herding activities in its surroundings (Dupré-Ollivier in López-Merino, 2009:49). Some paleoenvironmental datasets such as the palynological sequences from El Vaḷḷe or Ḷḷeitariegos show low anthropogenic pressure on the upland environment during the Bronze Age, even though there are megalithic burial mounds nearby. These situations emphasize the need to conduct more extensive archaeological research to understand exploitation of the uplands in the period.

As a consequence of population growth and the substantial increase in labor investment on the land by Bronze Age groups, the social and cultural landscapes changed. In contrast to Neolithic landscapes, the available archaeological evidence suggests that Bronze Age landscapes were increasingly territorialized through the continuation of megalithic burial traditions (Marín, 2011), the spread of schematic rock art linked to "natural monuments," the appearance of metallic hoards in liminal places and with the appearance of identifiable "encounter points" (for trade or negotiating social/cultural/productive relations among groups) (de Blas, 2008a; Ruiz-Gálvez, 1998). These observations lead us to assume clearer and more

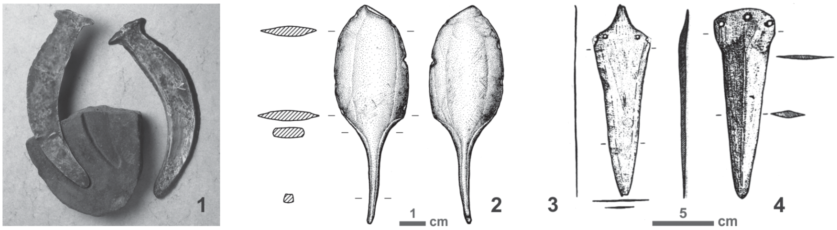

Figure 9.5 Some of the Bronze Age materials found in the study area are connected to mountain passes or the highest peaks in the axis of the Cantabrian Mountains. These elements, such as the sickles from Las Verdes (Cabrillanes, León) (1, Museo de León reproduced with permission), the Palmela point of Jou Santo (Cangues d'Onís, Asturias) (2, from Polledo-González et al., 2018, reproduced with permission) or the daggers/short swords of Puerto Gumial (Ayer, Asturias) (3–4, from Marín, 2011:97, reproduced with permission), could be interpreted as votive deposits related to encounter places during Late Prehistory.

permanent links between Bronze Age communities and their territories (although they were still itinerant) and the emergence of inequalities—particularly in the Late Bronze Age (Armada, 2013).

Iron Age and the sedentarization of local communities

At the beginning of the 1st millennium BC there was a substantial change in the settlement patterns of northwestern Iberia and the western Cantabrian area. After a few generations, local communities became fully sedentary, giving way to the Iron Age (González-Ruibal, 2006–2007; Marín, 2011; Parcero et al., 2017). Since then, social, political and productive landscapes were organized around the hillforts—*castros* in Spanish, Asturian and Galician languages— which constituted the main identity referent for their inhabitants and the axis for anthropization processes.

Agricultural activities intensified in northwestern Iberia and the Cantabrian Mountains throughout the Iron Age thanks to the diversification of cultivated species, the use of new iron tools along with draught animals and the consolidation of stable crop field systems around the hillforts (Parcero et al., 2007; Teira-Brión, 2010). Traces of some of these agrarian structures underlay the actual fields and meadows, as commercial-led excavations found in nearby regions such as Galicia (Parcero, 2006). Regarding pastoralism, the Iron Age shows the development of a new livestock management system in the Cantabrian Mountains that relied on increasing cattle specialization throughout the first millennium BC. This observation could imply that seasonal alpine mobility or valley-transhumance models emerged as

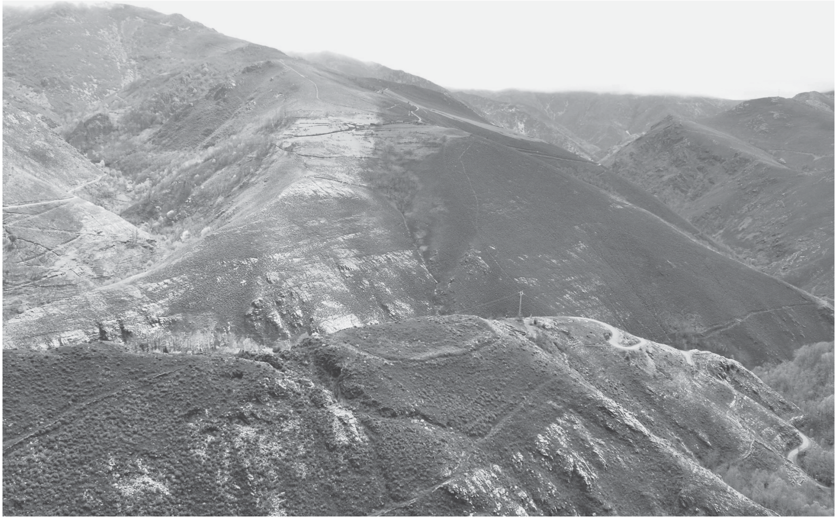

Figure 9.6 Iron Age communities built impressive defensive structures (stone walls and ditches) and selected prominent locations to create monumentalized settings. Hillforts were the nodal points within their social and productive landscapes: The hillfort of Os Castros in Samartín del Valledor (Ayande, Asturias) (author).

the main strategy for exploiting the fresh summer pastures in alpine and subalpine areas.

This pastoralist strategy would be similar to the traditional herding models deployed by rural communities until few decades ago (González-Álvarez et al., 2016). Therefore, the changes in the anthropization process shaped compartmentalized or divided landscapes that were organized around the monumentalized hillforts, which became the central nodes for the nuclearized settlement patterns in the Western Cantabrian Mountains during Iron Age.

The palaeoenvironmental records in the Western Cantabrian Mountains show a clear impact on the landscape after the full sedentarization of human groups during the Iron Age. Datasets such as those in El Castro and La Mata lakes reflect an extension of open areas and the spread of domestic cereals since 750/650 cal BC on the southern slopes of the Cantabrian Mountains (Jalut et al., 2010: 344). The diversity in the agrarian landscape of the northern slopes reach a new maximum regarding Late Prehistory with significant evidence for an extension in herding activities (López-Merino, 2009:160, 239). These processes can be observed in natural deposits such as La Molina, where the clearing of forests along the 1st millennium BC correlates with an increase in herding and mining activities (López-Merino et al., 2011, 2014)

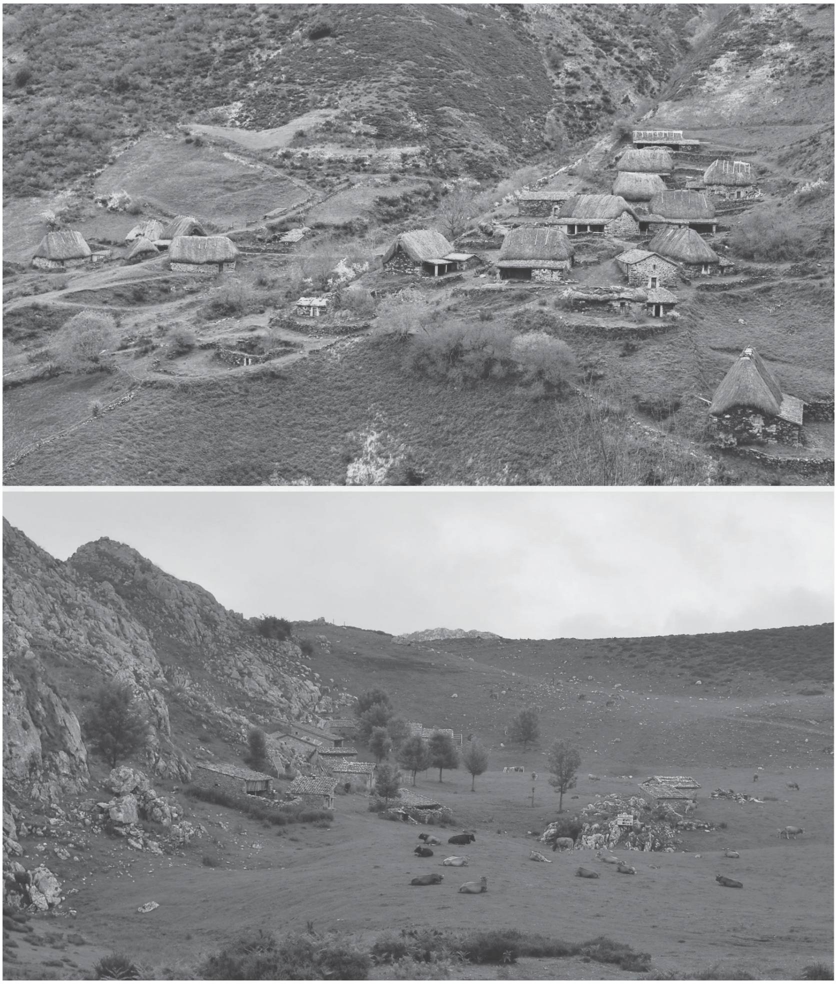

Figure 9.7 Traditional summer farms such as La Pornacal (Somiedu, Asturias) (above) or Belbín (Onís, Asturias) (below) could point to the types of locations also chosen as seasonal sites in Late Prehistory in the uplands (author).

and the appearance of legumes and millet within the bioarchaeological remains recovered in Iron Age hillforts (González-Álvarez, 2016).

Social and productive landscapes organized around Iron Age hillforts endured until the Roman conquest of the western Cantabrian Mountains 2000 years ago when this area was integrated into the Roman Empire. After a rapid transformation process, most of the hillforts were abandoned (Marín and González-Álvarez, 2011; Sastre, 2001), while rural open-settlements emerged as the starting point of Roman rural landscapes with hamlets for peasant communities and *villae* inhabited by local elites (Fernández-Mier, 2011; Fernández-Ochoa and Gil, 2008).

The breath of the mountains throughout late prehistory

This investigation reinforces the need to integrate archaeological and paleoenvironmental research in the study of prehistoric landscapes. The combination of both datasets helps us to build more complete narratives about the evolution of upland landscapes throughout Late Prehistory. Interdisciplinary research fills the gaps and lights up the shadows and limitations from both kinds of datasets. In addition, ethnographic and anthropological accounts help us to create denser narratives—closer to the human experience—about landscape biographies in upland regions such as the western Cantabrian Mountains.

Despite the scarce archaeological evidence in the study area, palaeoecological studies allow us to draw a preliminary picture of anthropization processes and create better research questions for future archaeological investigations. The palaeoenvironmental datasets available show human presence in alpine and subalpine areas of the study area throughout Late Prehistory. We need to assume that the western Cantabrian Mountains were inhabited, imagined and exploited by human groups at least since the Mesolithic. Human agency was one of the key factors in the making of upland landscapes. Communities adopted different settlement patterns and followed diverse subsistence strategies that fostered varying anthropogenic changes in the environment and did not necessarily engender cultural, social or economic traits in any “lineal evolution.”

Were the uplands more “wild” or “marginal” landscapes than the lowlands during Late Prehistory? Preliminary research in the western Cantabrian Mountains points out that upland landscapes reflect vibrant social and cultural processes during Late Prehistory. Communities adopted particular strategies for adapting to mountainous environs, sometimes with complementary activities to those carried out in the lowlands. Traces of anthropogenic pressure on the environment could be read as a story of landscape anthropization that can be best explored through Landscape Archaeology and Historical Ecology. Aiming to fill the void and considering successful investigations carried out in other European upland areas, this line of research should be one of the more urgent tasks to be tackled by archaeologists in the region.

Furthermore, this research demonstrates that the “nature/culture” divide is a Cartesian simplification of reality that needs to be nuanced through social sciences (Ingerson, 1994). Interestingly, there is a growing disaffection in the study area regarding the management of natural parks, the agrarian exploitation of land and the use of rural landscapes between environmental activists, public administrations, visitors, tourism entrepreneurs and local communities. This is a failure in public governance (Alonso-González et al., 2018), but also a consequence of social scientists remaining absent from public debates. Archaeology and Historical Ecology may help to reduce conflicts between different stakeholders by emphasizing past human roles in the management of upland landscapes across the long-term (González-Álvarez, 2019).

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10 The end of Iron Age societies in northwestern Iberia

Egalitarianism, heterarchy and hierarchy in contexts of interaction[1]

Inés Sastre and Brais X. Currás

Carole Crumley is one of the most influential researchers in the renewal of European Iron Age studies. Crumley's work synthesizes the historical study of societies' spatial dimensions (landscapes), the multidisciplinarity of Historical Ecology, an emphasis on the diversity of past societies and a commitment to social welfare. Her approach aims "to bridge the gulf dividing Snow's two cultures" (i.e. the physical and biological sciences *versus* social sciences and humanities) (Crumley, 2006:2–3; Snow, 1959). Drawing on the concept of "heterarchy" from neuroscience and artificial intelligence, Crumley (2006, 1979:145) stresses the multiple horizontal and bottom-up relationships that often work within or instead of, expected hierarchies.

Such approaches to the history of European landscapes emphasize diversity within the Atlantic and Mediterranean social systems and ecosystems (Crumley, 1995a). Likewise, the concept of heterarchy also fosters a spatial approach. Landscape studies transcend older foci on a single settlement unit inside a static spatial framework. An analysis of settlements as isolated dots on a map is now replaced by an interest in interrelationships between settlements. Hierarchical views in spatial studies focus on settlements, so that territorial analysis is limited to "hinterlands." Conversely, the recognition of heterarchy implies an understanding of the different elements that define the landscape, taking into account the diversity of their interrelationships. Crumley's concept of heterarchy is based on multifaceted understandings of societies and aids the examination of power in decentralized social formations.

The authors are a part of the research group *Social Structure and Territory, Landscape Archaeology* that shares these approaches, particularly a multi-disciplinary approach to landscape. Landscape is the result of a dynamic synthesis between social relations and the environment, which both change through time. This means that spatial relations are the basis of any understanding of how ancient societies worked and modified themselves over time. Our main objective is the study of historical processes affecting both Iron Age and Roman communities of the northwestern Iberian Peninsula, in particular during the transition from the pre-Roman to Roman periods, as well as during the Early Empire. The group concerns itself with both the integral study of the archaeological record (from geoarchaeology to material culture) and the available contemporary written record.

In this paper, we will deal with the archaeological record relating to the initial phase of Roman domination (second to first centuries BC) and consider how these societies constructed space throughout time. We will try to show why the heterarchical approach is highly inspiring for understanding this Late Iron Age record, which is marked by intercultural interactions with Romans under imperial expansion. We use heterarchy as a lens through which to look differently at the archaeological record.

Centralization, agglomeration, coalescence, complexity and social change

Crumley's work came at a moment of great dynamism in the study of the European Iron Age when social formations were first being analyzed using decentralization (even de-urbanization) models. The volume *Celtic Chiefdoms, Celtic States* (Arnold and Gibson, 1995) is indicative of these changes. A critical revision of Celticism was accompanied by approaches that aimed at a larger challenge: to provide support for the presence of decentralized non-state forms of hierarchy, such as chiefdoms and for resistance as an active social factor.

Crumley proposed the notions of democracy and heterarchy as characteristic of "Celtic" power relations (developed further by Thurston, 2010). Such socio-political arrangements correspond to rural, dispersed settlement, which is counterposed to Roman landscapes based on cities. Consequently, the urban character of the large indigenous settlements (*oppida*) of the European Iron Age is denied by Crumley. These sites are defined merely as fortresses and they are not considered as population centers (Crumley, 1995a). Heterarchical Atlantic Iron Age societies are then characterized by their existence in a highly changing environment, the flexible negotiation of power relations and democracy. Crumley stated that "Hierarchical socio-political organization does not necessarily imply a settlement hierarchy" and "complexity" is not necessarily synonymous with "hierarchy" (1995a:29–30). Such a perspective highlights the differences between the Late Iron Age and the Roman eras: in the latter, the classic city appears as a symbol of centralization and autocracy (interestingly, the *populus* as a citizenship body with voting rights does not qualify it as a "democracy").

The concept of heterarchy emerged simultaneously with other studies that underline the relevance of resistance in analyzing power relations (Paynter and McGuire, 1991). Power can no longer be defined as something exerted over society; rather, it is a capacity which is distributed or polarized among groups within a society: "power permeates social life" (Paynter and McGuire, 1991:6). This "de-institutionalization of power" or "heterogeneity of power" (Bowles and Gintis, 1986:23) with its corresponding "heterogeneity of resistance," (Paynter and McGuire, 1991:12) permeates all social relationships. The relevance of heterarchy, the “relation of elements to one another when they are unranked or when they possess the potential for being ranked in a number of different ways” (Crumley, 1995b:3), is thus clear. Traditional views require social complexity to be forged through the union of technological progress and demographic growth inside high-density population centers (cities). Heterarchies, contrastingly, indicate complexity in a society’s very flexibility in managing power relations and in adaptability to changing environments.

This is now a widely accepted concept, thanks to the consolidation of two academic approaches: collective action and political economy. The latter “emphasizes the struggles among members of society over the exercise of social power” (Paynter and McGuire, 1991:1). Collective action approaches emphasize “self-organization” and attempts to “disentangl[e] the motivations and institutions that foster group cooperation among competitive individuals” (Carballo, 2013:3). Both perspectives have promoted bottom-up approaches which have challenged long-standing linear interpretations and have opened the door to a broad array of possibilities which include either collective and corporate systems or hierarchical and autocratic power relations or even both forms of social relations in different social spheres (Gyucha, in press; Jennings and Earle, 2016). In this way, historical interpretations that had traditionally been considered development failures may now be seen as alternative or divergent historical processes. Decentralized chiefdoms, peasants with mindsets resistant to economic exploitation, anarchic power relations and the fissioning and atomization of social processes have become subjects for anthropological and archaeological studies.

The relation between population aggregation, urbanization and the emergence of the state has also come under new scrutiny. The case study presented here examines such matters in direct relation to the emergence of large settlements. Their very existence has normally been considered proof of hierarchization and state formation. The processes of urban aggregation are, however, no longer directly correlated with ranked or hierarchical societies, but can be the consequences of complex or variegated social organizations. Contrary to a long established vision, many authors now argue that “the earliest cities may have grown largely unstructured by state institutions […] organized for generations through dynamic, heterarchical relationships that linked together neighborhoods in collective actions, such as for mutual defense, construction of irrigation facilities or major religious events” (Jennings and Earle, 2016:478). These authors also suggest that:

> having many people in one place tends to make hierarchical control more difficult to assert and maintain, and leaders must depend on positive attractions, such as ceremonial elaboration, rather than on cruder means of control through the political economy […]. Cities are thus not

> the harbinger of the state that theories of cultural evolution have long assumed. These sites may instead represent one of the hardest settlement types in which to control people, because of their fluid and faceless (to administrators) character […]. Early state formation was often more difficult in urban settings….
>
> (Jennings and Earle, 2016:485)

The indices used to measure the interaction between social tension and population growth—such as Rappaport's Irritation Coefficient or Johnson's Scalar Stress (Bandy, 2004)—show that the likelihood of conflict is heightened during processes of population aggregation. Johnson (1982) analyzed the correlation between group size, information flow and decision making: it is noted that the communications load "geometrically increases as the number of individuals increases, becoming unmanageable beyond a certain threshold" (Alberti, 2014:1). Following Rappaport, "if population increase were taken to be linear […], the increase in some kinds of dispute might be taken to be roughly geometric" (Rappaport, 1968:116). What must be emphasized now is that this conflict may have acted against social hierarchization (Bandy, 2004). The viability and continuity of these cities and other aggregated settlement patterns, which imply an end to the previously ongoing fission that was characteristic of communities, require mechanisms for conflict control. The existence of hierarchy has normally been considered as the only mechanism that can achieve this. However, recent research has identified alternatives for constructing communal relationships. Some authors distinguish for example between centralization and integration. Following Johnson, Stephen Kowalewski and collaborators (1983:37) state that "centralization might increase or decrease with scale, depending on *which* connections between *which* components were modified. Hence the relationship between integration and centralization is not likely to be simple in real systems." For Gary Feinman, the development of communal relationships is not a matter of size, but of "interconnectivity" (2011). Examples of the possibilities might include Çatalhöyük, a settlement with 3500 to 8000 people, characterized by its "fierce egalitarianism" (Hodder, 2014:5) or "nucleated clusters" as at Jenné-jeno (Mali), which extends to 12 to 33 hectares (McIntosh, 1999:75). Both present a "variation on nucleation" which indicates that sources of power "rather than being centralized and consolidated, are counterpoised among different segments of society" (McIntosh, 1999:75). Involutionary historical processes—those processes that seem to reverse the evolutionary line towards greater complexity—have also been analyzed. Fargher and others, following Kowalewski, consider that

> in situations of severe pressure and threat, disparate groups may join together for mutual benefit and in the process develop new social formations. Often, Kowalewski points out, this involved a change in

> which centralized authority gave way to more inclusive councils while, at the same time, myth-making justified hierarchical control.
>
> (Fargher et al., 2010)

This has been called an "egalitarianism turn" by the same authors.

New forms of communalism: large *castros* during the Republican Late Iron Age

Scalar stress produces social change through conflict. The appearance of institutions and practices designed to manage internal conflict can be considered social innovations. The institutions that appear to handle such change successfully, however, do not necessarily empower rulers. By communalism we refer to the social tools used to manage conflict for the benefit of the group's viability as a corporate unit and those practices that work against centrifugal tendencies that favor the emergence of unequal access to power. Examples of communal features for resolving scalar stress are the monumentality of Pueblo villages (Adler and Wilshusen, 1990) or the public ceremonialism of settlements of the southern Titicaca lake (Bandy, 2004:330).

Social innovations related to population concentration levels, as a way of overcoming scalar stress, is one way to understand changes in aggregated settlement patterns. Innovations are something contrary to tradition, albeit taking root in the previous reality. Innovations can also appear dialectically, based on decisions taken precisely in order to avoid change within new contexts. Jason Ur has reflected on this form of social change based on work regarding "eventful archaeology" carried out by Sewel: in this perspective "events are creative reproductions of existing structures by purposeful actors that have great social ramifications" (Ur, 2014:16; Beck et al., 2007; Sewel, 2005).

In Northwestern Iberia we identify one of such events in order to explain social change: Roman dominion. We consider that large *castros* are the evidence of social changes caused by an attempt to maintain communal relationships in the context of the Roman conquest during 2nd and 1st centuries BC. Iron Age *castros* (8th-3rd c. BC) are community-based small-scale societies (Fernández-Posse and Sánchez-Palencia, 1998; Sastre, 2008; Currás, 2014), but Roman military pressures provoked changes in *castros* (Currás, Sastre and Orejas, 2016). The most visible novelty is settlement aggregation into large *castros*.

Our hypothesis is that these new communities tried to manage changes by deploying traditional communal cultural tools (such as the segmentation of *castros*' inner spaces by households and communal control of surplus resources) (Sastre, 2008; Currás, 2014). However, while these had mitigated against hierarchy in small *castros*, inside the larger aggregated settlements these same practices inadvertently provoked the appearance of a new social

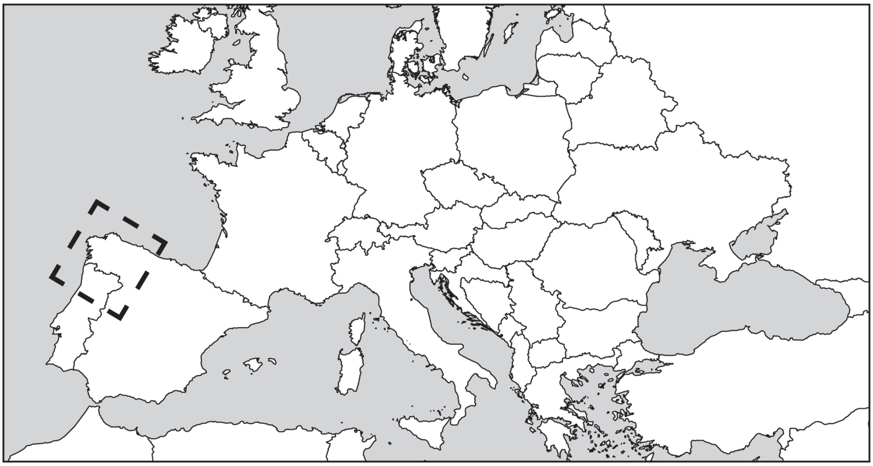

Figure 10.1 The Northwest Iberian Peninsula.

arena with unpredictable innovative possibilities. The chronology of this process is controversial, but the latest excavations in San Cibrán de Las have allowed researchers to determine with great precision the moment when large *castros* appear (Álvarez González et al., 2017). Carbon-14 locates an *ex novo* foundation possibly at the end of 2nd c. BC and clearly by the middle of 1st c. BC.

The logic of the spatial model of earlier small *castros* in the Iron Age landscapes of Northwestern Iberia entails an equilibrium which makes control over production and over settlement growth possible (Fernández-Posse and Sánchez-Palencia, 1998; Sastre, 2008; Currás, 2014). Social stability was marked by the homogeneity of small settlements and households. Both were characterized by their lack of differentiation, by political independence and by economic self-sufficiency. We define this social model as "segmentary." However, a change begins in the second century BC. In the southern and coastal regions of Northwestern Iberia, large settlements emerge. These are quite distinct from the previous Iron Age settlement form and pattern. This social aggregation fosters a new context of innovation and change. Large *castros* provide evidence that Iron Age communities stopped being what they were and became something else. They are not characteristic of the Iron Age in general, but rather demonstrate the opposite: they are exceptional; they are different.

Why was a social structure, such as that characteristic of the earlier segmentary Iron Age *castros*, that had always tended towards disaggregation and had succeeded in maintaining the balance between households and communities, suddenly re-oriented towards coalescence and the concentration of population? A fundamental explanatory factor for this is the presence of a dominant imperialist State (i.e. Rome). That stated, it is not our intention to resuscitate long-forgotten diffusionist theories of civilization. On the contrary, it is the failure of the careful checks and balances reflected in the archaeological record for the earlier Iron Age societies which requires an explanation. In this regard "the complementary nature of push and pull explanations" (Adler et al., 1996:406) is certainly a good starting point.

Comparative studies (Birch, 2013; Smith, 2014) have organized the drivers for aggregation into three factors: defense, political administration (with coercion to facilitate taxation and population control) and economies of scale (which could be related to communalism and collaborative labor or to central-place functions). In our case, defense seems clearly implicated (see below) but the other two drivers fit better with the Augustan era from the end of first century BC onwards. Regarding defense, many researchers have emphasized warfare as an essential element in Iron Age social formations, but they generally do so in order to explain atomized settlement patterns (Parcero and Criado, 2013). The most obvious threat at the time large *castros* emerged was Roman expansion (which had succeeded Carthaginian imperialism). This has been used to explain coalescence at some places such as Las Labradas de Arrabalde (Zamora), a 25 hectare fortified settlement dating to the first century BC (Esparza, 1987:242; Romero, 2015:115–117, 138).

With regard to issues of domination and coercion, it is sometimes difficult to distinguish the archaeological records relating to the phases just before and just after the Augustan conquest of the late first century BC. However, there is an essential distinction to be made because the forms of Roman imperialism during the Late Republic differed from the dominion imposed by Augustus based on an hegemonic imperialistic ideology. Processes of synoecism to encourage larger settlements directly induced by the Roman administration are documented after the reign of Augustus and thus in the first century AD (both by ancient texts and archaeological research). These are clearly related to the new forms of imperial dominion introduced by Augustus in order to establish a general imperial taxation system that would characterize the Empire. But we contend that the area occupied by the large *castros* was surely under Roman control before the Cantabrian Wars (29–19 BC) (probably by the end of the 2nd c. BC and clearly in de middle of the 1st c. BC). This control does not imply systematic military occupation impacting both populations and territory. Instead there seem to have been bilateral forms of domination that were characteristic during Republican expansion. While these did not entail particular expectations of cultural assimilation on the part of Roman generals, they were clearly enough to promote social change (Ñaco, 2003; Currás, Sastre and Orejas, 2016). It was inside this militaristic environment that the earlier growth of the large *castros* took place. Change is clear in the more southerly and coastal areas: especially between the Miño and Duero rivers, as well as in the León flatlands of the interior. This development must be interpreted as a local response to the increasingly powerful presence of the Roman army in this territory after

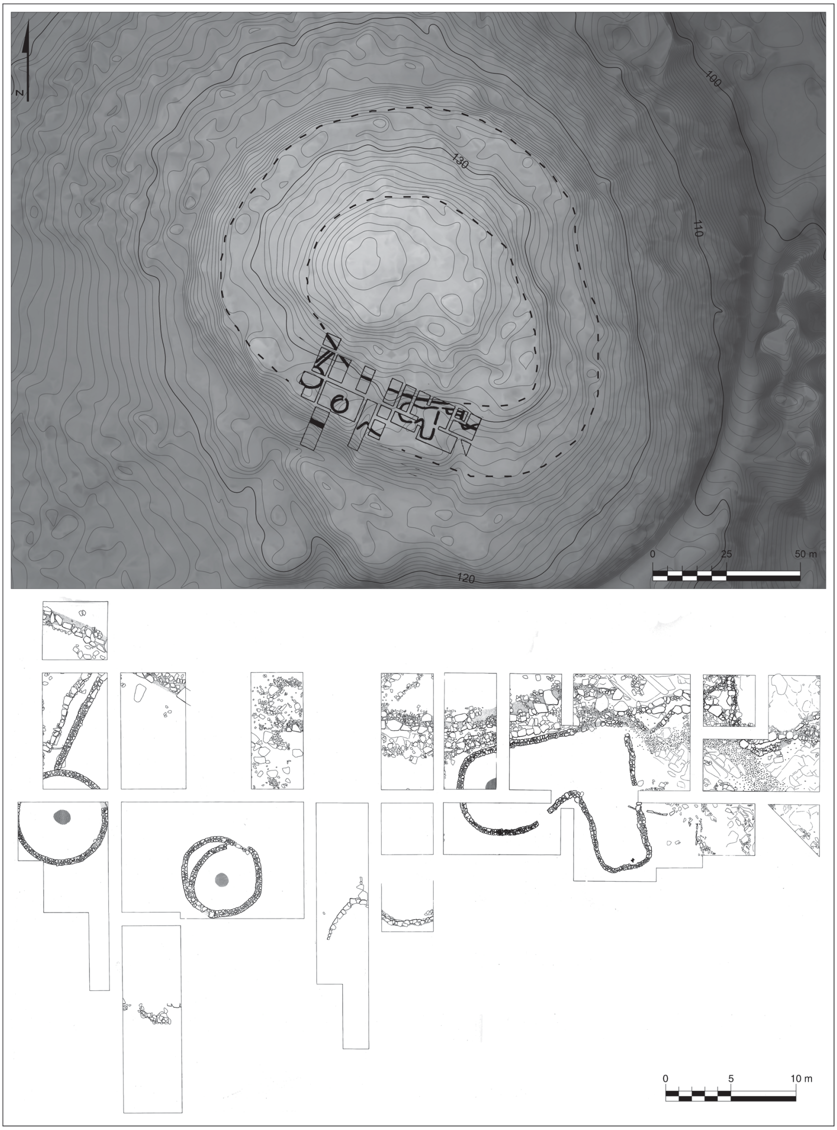

Figure 10.2 Torroso *castro*, VIII–V c. BC (modified after Peña Santos, 1992).

the first military campaigns by the end of the 2rd c. BC, but the precise mechanisms by which and the precise moment at which, these processes took place, are unknown. Moreover, the indisputable evidence for social hierarchization in this areas that occurred under Augustus was not necessarily present at all in earlier times.

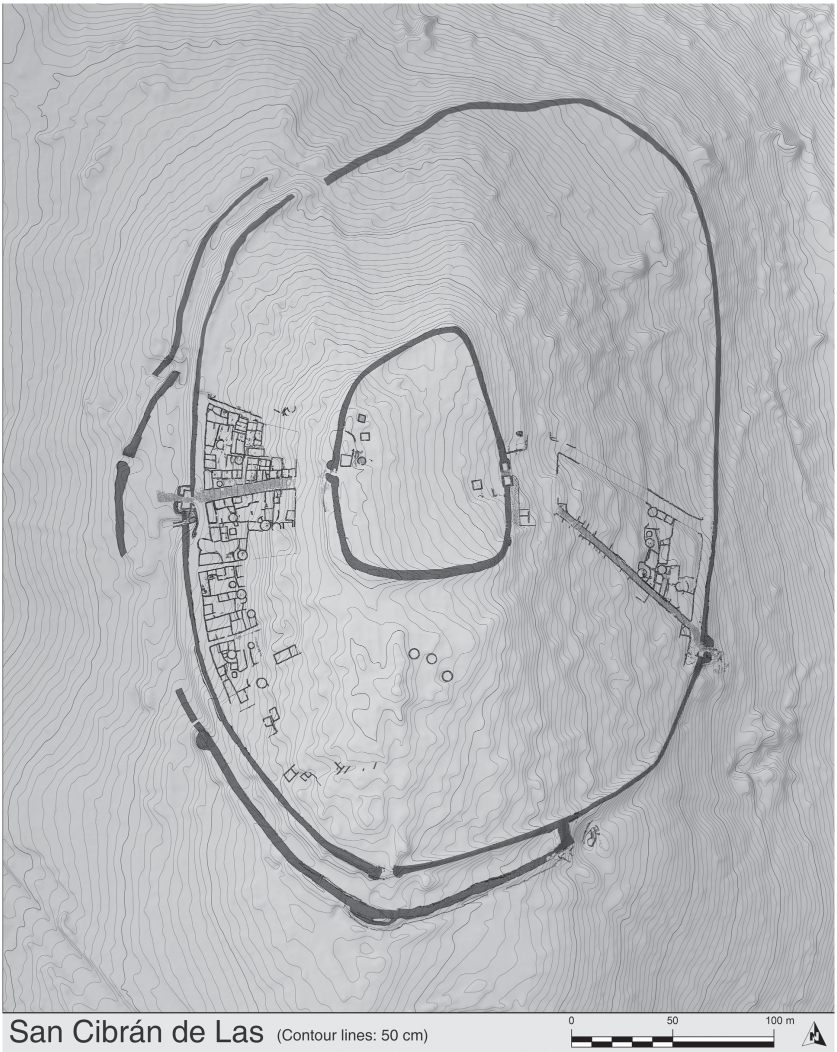

Figure 10.3 San Cibrán de Las large *castro*, I c. BC–I c. AD (after Terra Arqueos S.L. planimetry).

A heterarchical model can assist in understanding this period of change, because the notion of "heterarchy" highlights the fact that both communal and hierarchical features can co-exist within the same society. While Crumley's model for the Iron Age emphasizes the "democratic" features that restricted the power of Celtic hierarchies, we highlight the communal forms of organization that attempted to prevent the emergence of such hierarchies and which finally failed because of increasing Roman imperial pressure.

These communal forms of organization included a segmentary social organization that controlled settlement growth and surplus production. These Iron Age social foundations were turned on their head when settlements began to grow, but it seems clear that generalized access to the means of production and a segmentary spatial logic persisted. Our interpretation considers the archaeological record recovered from the larger *castros* as a convoluted result of the co-existence of hierarchical and heterarchical power flows taking place in contexts which were formerly egalitarian. There appear to have been "nascent leaders" who attempted "to build power across settlements organized around cooperative units that stubbornly insisted on autonomy and relative egalitarianism" (Jennings and Earle, 2016:477). For many authors, large settlements were clearly central places which organized and dominated smaller *castros* (González-Ruibal, 2006:152), but we maintain that this hierarchy emerged after the Augustan conquest. During the preceding Late Republican period, communal forces remained active and can even be seen as predominant. In the following paragraphs we illustrate this point.

Settlement size is a conspicuous difference between the large and small *castros*; but functionally, the differently sized settlements had similarities. Although large *castros* lack comprehensive in-depth analysis beyond traditional archaeological excavations, there is no evidence of large settlements holding political sway over territories beyond their immediate catchments. That is to say there are no indications of domination and subordination amongst settlements in the pre-Augustan period. Smaller and larger *castros* were located close together. In other cases, large *castros* were positioned very close to each other. Defining the territorial unit belonging to a single large *castro* can therefore be difficult. Social hierarchy is particularly hard to detect from the organization of space within the settlement walls of large *castros*. No specialized sectors or buildings stand out. Evidence for trade and exchange is no more strongly present in the large settlements than in smaller ones. All artisanal and productive activities occur in *castros* of all sizes. The material record from these sites is also hardly different, regardless of the size of their enclosing perimeter. In addition, elements potentially associated with social hierarchy at this period—such as Mediterranean imports, saunas, warrior statues and figurative art—appear both in large *castros* and traditional smaller ones.

Large *castros* represent an aggregation of households and have a distinct absence of any larger or ceremonial buildings. Households are similar to those represented in the pre-Roman model found in the smaller *castros*, but are arranged differently in spatial terms: the compounds and "neighborhoods" (González-Ruibal, 2006; Silva, 1983–1984:128). Their most relevant feature is that every household had its own subsistence stores. This implies that decentralized control of resources was an ongoing reality in these settlements. In the absence of communal resources, an egalitarian ethos could have survived from earlier times: small-scale cooperative units with face-to-face interactions could compete with centralizing tendencies, but, at the same time, facilitate support for overarching political power structures (Jennings and Earle, 2016:477; Smith and Novic, 2012). The absence of communal resources is thus highly relevant, paradoxically, in explaining the viability of communal relationships. As Colin Grier and Jangsuk Kim have noted "communal resources to which no one has individual control leave the effective control of these resources in the hands of managers" (2012:20). So, the centrifugal trends of households are counterbalanced by the communal spheres of interaction. We therefore deem inaccurate the "house society" model in which each family's space within a village became more relevant and self-contained by the Late Iron Age in comparison with the more open layout observed in previous *castros* (González-Ruibal, 2006:154). Even if familial spaces became more self-contained in larger *castros*, the social relevance of communal features continued so that domestic arrangements cannot be seen to typify these settlements (Gillespie, 2007:26). A model focused solely on the domestic institutions in the change from small to large *castros* also ignores the significant factor of Roman pressure on local populations.

Hierarchical trends inside a "third space"

In large *castros*, as outlined above, there is a communal dimension that overcomes the supposed independence of "households." In fact, *castros* are aggregations of households, each controlling its own subsistence production. But the new reality imposed by a large community in which daily face-to-face interaction is no longer possible, activated scalar stress. It is in these new social circumstances that the first evidences for social inequalities are documented. These new inequalities related to the emergence artwork ("warrior sculptures" and a proliferation of goldwork) that corresponded to new social divisions of labor that overcame previous self-sufficiency (Armada and García-Vuelta, 2015). Such new materiality comes with a new social reality imposed by the Roman presence. The beginning of Roman domination does not mean the simple assimilation of Roman cultural patterns by local communities; so-called "Romanization" presupposes a linear transfer of the values, ideas and objects of Rome and their uncritical and passive assimilation by the conquered groups. However, postcolonial studies and their significance for understanding the expansion of Rome have shown that Romanization was a much more complex process. The dominated had agency in the creation of a new reality (Woolf, 1998; Mattingly, 2011). The resulting society was neither Roman nor indigenous; it was a hybrid product (Jiménez Díez, 2008) that emerges in a "third space" (Bhabha, 1994). Following Bhabha, we understand this third space as an area situated out of binary logic. The third space is an area resulting from the interaction of two cultures, which produces a space of social negotiation from which arises a new social reality. Here, in this space of ambivalence, "the process of cultural hybridization gives rise to something different, something new and unrecognizable, a new area of negotiation of meaning and representation" (Rutherford, 1990:211).

> The importance of hybridity is not to be able to trace two original moments from which the third emerges, rather hybridity to me is the 'third space' which enables other positions to emerge. This third space displaces the histories that constitute it and sets up new structures of authority, new political initiatives, which are inadequately understood through received wisdom. (Ibid.)

Warrior statues are especially eloquent in this sense. Both the chronology and the interpretation of these sculptures have been controversial. It is unclear when they first appear, but there is a minimal level of consensus in which they are placed between the end of the second and first centuries BC and endure into the first century AD. Interpretations of warrior statues vary with some scholars envisaging them as a form of Roman provincial art (Calo, 1994) and others viewing them as a symbolic manifestation of Iron Age communities (Rodríguez Corral, 2012). Dichotomizing the figures as either Roman or indigenous fails to address the complexity of cultural change in the centuries of their production. The statues show symbols that are relatable both to local groups and to Roman power, but these symbols have new social meanings. For example, the *caetra*, the round shield, is described by Diodorus (V, 34, 4–7) and Strabo (III, 3, 6) and is depicted in use by Roman troops in the coinage of the Cantabrian Wars. Some statues, like the one from Sanfins, Portugal, wear a helmet, seemingly of Montefortino and thus Roman type. These helmets are an integral part of the Roman provincial world and they can also be found within *castros*, albeit with certain, probably local, stylistic particularities (García-Mauriño, 1993:136). Another recurring feature on these sculptures is the so-called biglobular dagger (Quesada, 2003), a weapon of Celtiberian origin that arrived in the Northwest with Roman soldiers. Clothes depicted on these statues display the same symbolic elements that we find in domestic architecture and on locally made jewelry after the second century BC.

Many warrior sculptures are depicted wearing a torc around their necks. The overwhelming majority of gold torcs found in the Northwest date to the 2nd-1st centuries BC. They are clearly locally-produced and display indigenous stylistic and technical characteristics (García-Vuelta, 2007). Notwithstanding Northwestern Iberian production, the torc is also a Roman symbol; a military award loaded connoting not only martial success, but also the exercise of power (Marco, 2002). Additionally, the torc appears within the complex figurative narrative of sacrificial bronzes (Armada and García-Vuelta, 2003). Torcs form part of a complex iconographic language (which probably includes zoomorphic art, cauldrons and axes) that emerges in this moment of change and is fostered under Roman influence.

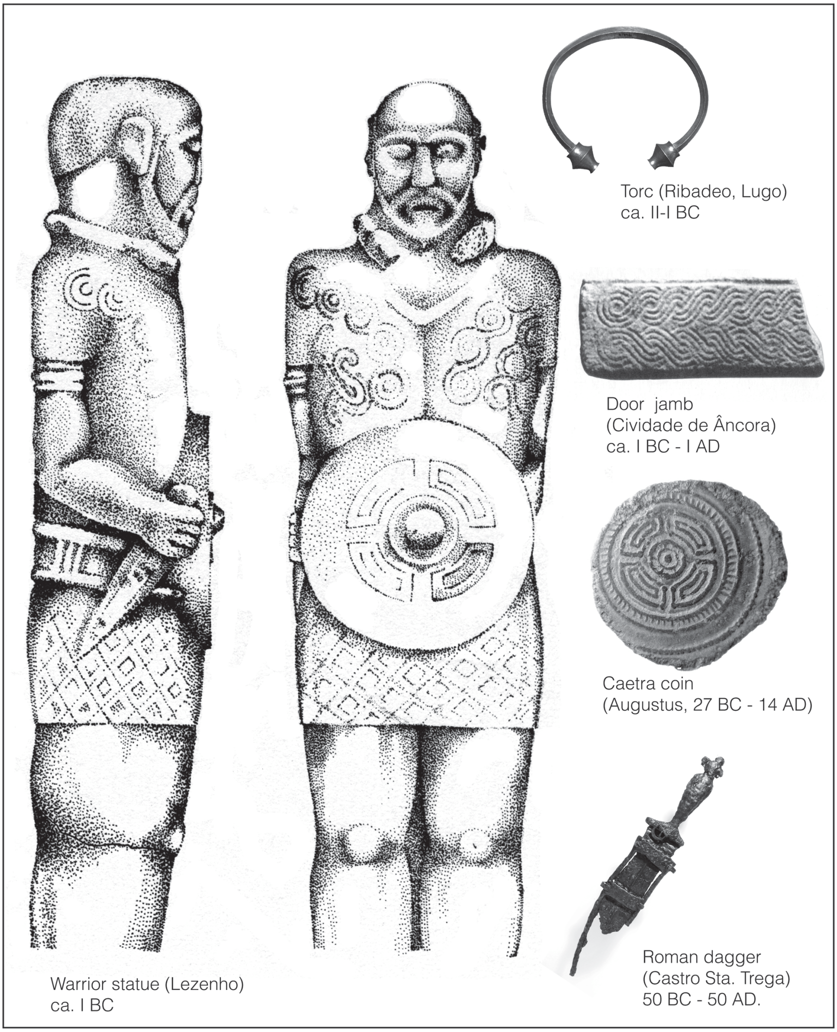
Torc (Ribadeo, Lugo)
ca. II-I BC
Door jamb
(Cividade de Âncora)
ca. I BC - I AD
Caetra coin
(Augustus, 27 BC - 14 AD)
Roman dagger
(Castro Sta. Trega)
50 BC - 50 AD.
Warrior statue (Lezenho)
ca. I BC

Figure 10.4 Warrior statue from Lezenho *castro* (modified after Silva, 1986, Peña Santos, 1987, Calo, 1994; torc photography by O. García Vuelta).

Taken as a whole, these sculptures are an artistic synthesis of the new social order and the new elite which emerged from the second century BC onwards as a result of contact with Rome (Currás, Sastre and Orejas, 2016). The representations of the warrior are an unambiguous indigenous type of local production, but one that was capable of adopting symbols that were intelligible in the semiotics of power, both for the conquerors and those they dominated. The statues can be considered to mediate between the

Empire and the local leaders and between the local elite and the rest of the subjugated population.

New local leaders thus represented themselves, both to their communities and to Rome in military roles. Some authors stress the paradox of Rome allowing the erection of statues of heroic indigenous warriors (Calo, 2003:39). However, the language of the statues does not necessarily reflect a warmongering local society nor local tradition. Their emergence fits within a strategy of the creation of new referents of power. This strategy was activated during the first contacts with the Roman world, then intensified during the conquest phase and was finally conditioned by new provincial realities. Considering the wars that marked the arrival of the Romans, the militaristic representation of local elites is self-explanatory. The Empire was present in the Northwest because of its victorious army, from which all power emanated. That army, in turn, was also the main means of access to the sources of power that now ruled the land. It is not unreasonable to imagine that the warrior sculptures resembled the *auxilia* (foreign troops, in this case locals) that served in the Roman army, possibly even before the time of Augustus. For example, in 49 BC during the preparations for the clash with the armies of Caesar, Pompeian forces carried out several maneuvers in the Northwest. At that time, Petreius was in charge of recruiting infantry and cavalry in Lusitania, whereas Afranius did the same in the territories of the “Celtiberians and Cantabrians and all the barbarians that inhabit in the coasts of the Ocean” (Caes. *B.Civ*. I 38, 3).

By the first decades of the first century AD, under the rules of the Principate, a completely new society had become established, based on a new aristocracy and a centralized territorial system grounded in the Roman *civitas*. This implied the disappearance of the society based around large *castros*, which are abandoned by the end of first century AD. A new sociopolitical structure was imposed by the Roman state after the first century BC Cantabrian Wars. United by a network of roads, the new urban foundations *Asturica* (Astorga), *Bracara* (Braga) and *Lucus* (Lugo) became the axis for territorial control and the imposition of a tributary system. Inside this framework, new hierarchical settlement patterns developed. If communalism did not disappear completely, it adapted to the new imperial exigencies of a provincial, stratified society.

Final remarks

We have proposed an interpretation of Northwestern Iberian large settlements as a typical product of a “third sphere” (Bhabha, 1994) marked by indigenous responses (and resistance) to Roman pressure. Following Peter Burke, we assume that “hybridity is often, if not always, a process rather than a state” (2009:46). In our case, hybridity implied a radical social change, that is, the seeds of social exploitation. While we defend the argument that Roman imperialism was the main factor for understanding Late Iron Age changes and we emphasize the diversity of Roman interventions implemented over time, examining imperial dominion as a dynamic product of history allows us to change perspectives on these societies. The traditional opposition between indigenous and Roman must therefore be set aside; we face the challenge instead of tracing the types of changes produced through unequal interactions during Roman expansion. We find a dialectical relationship between a communal sphere of egalitarian interrelations, which smothers hierarchical trends (as in small *castros*), and the imperialist pressures inside a "third space" (large *castros*) that foster the emergence of those hierarchies.

The *castro* societies maintained an unranked political order and a non-hierarchical social system during most of the first millennium BC. Halfway between imperial hierarchies and the egalitarian societies of the Iron Age small *castros*, we find a different society in the making. It was a society not readily accommodated within traditional models of political theory, but which fits well inside a heterarchical approach: evidence points to both communal organization and emerging hierarchical relationships. Crumley's heterarchical analysis and her reflections on dynamic human-environment relationships allow us to identify complexities in the interactions between local communities and Late Republican Romans.

Note

1 This essay is a product of the research project "Paisajes rurales antiguos del Noroeste peninsular: formas de dominación romana y explotación de recursos" (HAR2015-64632-P; MINECO/FEDER), directed from the Instituto de Historia and is also part of the Fundação para a Clência e a Tecnologia postdoctoral project: SFRH-BPD-102407-2014.

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11 Iron Age societies at work

Towns, kinship and territory in historical analogy

Manuel Fernández-Götz and Raquel Liceras-Garrido

The last centuries BC were a period of profound changes across numerous regions of temperate Europe, witnessing the development of the fortified towns known as *oppida* and an expansion of socio-political networks and economic activities. In this paper, our aim is threefold: 1) summarize some current debates on Iron Age societal structures, 2) discuss the different levels of aggregation of Late Iron Age societies and their structuring through assemblies and central places and 3) introduce the historical example of the medieval "town and land" (*villa y tierra*) communities—administrative entities composed by different kinship groups—as a possible analogy that can help improve our understanding of the interconnections between kinship groups, towns and the rural world. Rather than providing clear answers or proofs for theoretical models, we have conceived this paper as a "food for thought" piece. The use of historical sources has been at the heart of Carole Crumley's work for many years (e.g. Crumley, 1974). While we will never be completely sure about "how Iron Age societies worked" (or did not, to paraphrase the title of Hill's 2006 paper), we should continue the endeavor of proposing new models based on an interdisciplinary approach.

Social models and analogies in Iron Age studies

Social models for Iron Age societies have been heavily debated in recent decades (cf. for example Collis, 1994, 2011; Hill, 2006, 2011; Karl, 2017). The traditional notion of a rather homogeneous "Celtic" society characterized as a "triangle" with elites at the top of the social pyramid has been questioned (Hill, 1989, 2006), with new models emphasizing the diversity of Iron Age societies and the variations that existed across time and space (Ruiz-Zapatero and Fernández-Götz, 2009; Sastre, 2002; Thurston, 2009). Particularly since the 1990s, dissatisfaction with the traditional "triangular" hierarchical model has led to the development of alternative ways of understanding Iron Age communities. An influential example is J. D. Hill's (2006, 2011) notion of "rectangular" and "trapezoidal" societies, in which there would have been little social distance between the members and

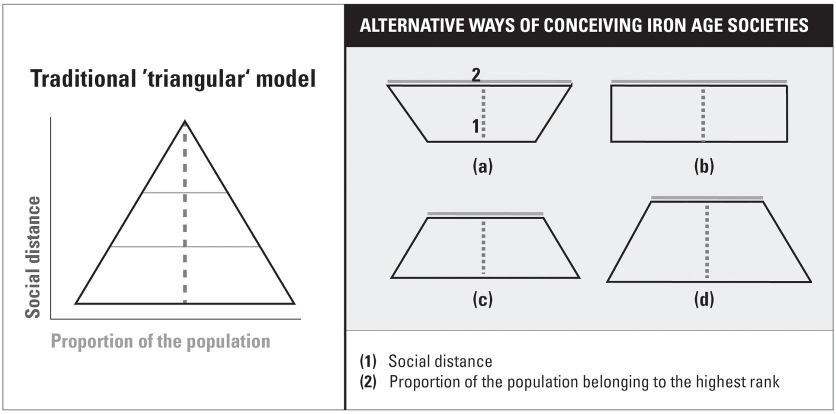
Traditional 'triangular' model
Social distance
Proportion of the population
ALTERNATIVE WAYS OF CONCEIVING IRON AGE SOCIETIES
2
1
(a)
(b)
(c)
(d)
(1) Social distance
(2) Proportion of the population belonging to the highest rank

Figure 11.1 Traditional "triangular" model of social organization and alternative ways of conceiving Iron Age societies (Fernández-Götz, based on Hill, 2006).

where a significant proportion of the total population would be part of the highest scale.

In some cases, however, the recent emphasis in scholarly literature on "flat" social hierarchies in the Iron Age seems to risk throwing the baby out with the bathwater, by replacing a monolithic model of "triangular" hierarchical warrior societies with another equally simplistic and static in which there was little or no social differentiation before the Roman conquest. Rather than favoring one conceptual model over the other based on theoretical *a prioris*, what we need are more contextual studies that dialectically consider the regional and temporal variability in social formations, since different types of communities with a variety of social configurations, settlement and burial patterns, ideologies, etc. would have coexisted and interacted. There was no uniform Iron Age society, but several Iron Age societies subject to change over time. The sixth century BC "princely seats" (*Fürstensitze*), for example, had much more marked social inequalities and a higher degree of centralization than their contemporary counterparts in the Soria uplands or the British Pennines.

Moreover, it has become increasingly evident that, at a European scale, there is no linear evolution from more decentralized and egalitarian forms to others that were more centralized and hierarchical. Instead, some highly hierarchical societies that could correspond with a sort of "triangular" model such as those of the Late Hallstatt *Fürstensitze* experienced episodes of crisis or even collapse that were followed by a return to more heterarchical and decentralized patterns. While the specific triggers of those episodes are not always very clear, it seems that at least part of them were related to strategies aimed to counteract the excessive development of social inequalities and centralization, along the lines of Pierre Clastres's (1989) famous work on "societies against the state." The results can often be conceptualized within the framework of "devolved societies" as expressed, among other authors, by Michael Mann (2012).[1]

Crumley's work on heterarchy, defined as "the relation of elements to one another when they are unranked or when they possess the potential for being ranked in a number of different ways" (Crumley, 1995a:3), has been among the most renewing additions to debates on societal formations. The recognition that Iron Age societies were not necessarily—at least not always—intrinsically hierarchical and that there are other ways of conceptualizing power relations has allowed the development of more complex and varied interpretations. It must be noted, nevertheless, that in some cases the term "heterarchical" is used incorrectly as the opposite to "hierarchical," but heterarchical social relationships also exist within highly hierarchical societies.

Two key issues that underlie—implicitly or explicitly—many discussions on Iron Age societies are the scale of analysis and the sources of analogies. For the former, a number of studies have adopted macro-models based on Immanuel Wallerstein's world systems theory (1974; see also Kümmel, 2001), including Susan Frankenstein and Michael Rowlands' (1978) famous article on "prestige good economy" in the Late Hallstatt period, Patrice Brun's (1987) monograph on the interactions between the Mediterranean and Central Europe in the Early Iron Age and Colin Haselgrove's (1987) paper on the Roman impact on Belgic Gaul. Other authors have focused instead on small-scale "household economy" models (e.g. Hill, 1995 for Iron Age Wessex). Both approaches (macro and micro) are complementary as they focus on different scales of analysis. However, models of Iron Age economies that try to bridge the gap between the macro and the micro are more rare, but necessary in order to understand the integration of different levels of socio-political organization. A multiscalar approach, as proposed by Carole Crumley, can be a useful avenue for research. In this sense, Raimund Karl's (2015) social network model for the procurement of labor allows us to link micro- and macro-economic models. As he stated:

> The combination of a micro-economic basis of households, families and neighbourhoods and the macroeconomic superstructure of lord-retainer relationships connecting the various microeconomic units allowed to procure the labour necessary for small local as well as for large and extremely labour-intensive tasks. (2015:34)

Fundamental to his proposal is the acknowledgment of both "egalitarian" (neighborly support) and "hierarchical" networks operating simultaneously.

Karl's model is mostly derived from Irish and Welsh Early Medieval written sources. This leads us to consider the role of analogies and their selection. All archaeological interpretation is to some extent based on analogy, either consciously and explicitly or unconsciously and implicitly (Gramsch, 2000; Ickerodt, 2010). To name two examples related to the Late Hallstatt period, Frankenstein's and Rowlands' (1978) model heavily relied on the Kongo kingdom (a historic-era entity in west-central Africa) as an analogy, whereas Chris Gosden's (1985) critique of their paper made extensive use of Irish and British historic and linguistic sources. Wolfgang Kimmig's (1969) influential interpretation of the *Fürstensitze* society was largely based on a "feudal" model, while Manfred Eggert's criticisms of his work favored the use of African examples. In fact, in Iron Age studies, a certain divide can be observed between scholars who turn to ancient and medieval written sources (from descriptions of the Homeric society to medieval texts from Ireland) as their main source of inspiration (e.g. Karl, 2006) and those that favor the use of ethnographic references from outside Europe (e.g. Eggert, 1988; more recently for example, Davies, 2018). Whereas the former often emphasize the advantage of the supposed closeness of their references (in the case of Early Medieval sources from Ireland and Britain on the argument of linguistic similarities and alleged ties between "Celtic" societies), the latter frequently condemn this perception as "ethnocentric" and advocate that non-European examples can provide a more refreshing perspective. However, both approaches should be seen as potentially complementary.

Late Iron Age networks: aggregations, assemblies and towns

How did Iron Age societies work? In line with the heterogeneity of social formations discussed above, there is no general answer to this question. There are, nonetheless, certain commonalities or at least aspects that would have been shared by most Late Iron Age communities. Among them, we can cite the existence of different layers of socio-political aggregation. Quoting Hill (2011:253): "Individuals, households and communities might have potentially been simultaneously members of different larger entities, different networks of sustained relationships (potentially of different kinds) to differing degrees." In the case of first century BC Gaul, for example, written sources—in particular Caesar—describe the existence of five main levels of social aggregation in an ascending order: 1) households; 2) extended family groups or clans; 3) sub-ethnic communities such as the four *pagi* of the Helvetii; 4) ethnic communities (*civitates*) such as the Aedui, Arverni, or Treveri which have been traditionally defined as tribal polities; and 5) finally macro-categories such as the Belgae or the Aquitanians (see references and discussion in Fernández-Götz, 2014a; Fichtl, 2012; Roymans, 1990; Verger, 2009). All these different levels existed at the same time, but their importance in everyday life varied considerably according to the circumstances. For example, while households and extended families might have played the most important role in daily life, at particular times of the year or in specific circumstances, such as a war scenario, other higher levels of social aggregations could have become activated and more prominent.

The existence of these different levels of social aggregation was obviously not exclusive to ancient Gaul and structures of a similar nature are also found in other regions, for example in Late Iron Age northern Iberia with nested entities such as *Astures* and *Cantabri* (comparable to Gallic *civitates* discussed above), *Zoelae* and *Orgenomesci* (similar to the pre-Roman *pagi*) and *Desonci* and *Pembeli* (clans or extended families; cf. Torres-Martínez, 2011:372). In addition to the socio-political layers mentioned above, we also need to take into account the existence of transversal elements such as different political factions (sometimes within the same family groups), other types of social identity such as gender and age groups, complex clientship networks at different scales, rules of honor governing social relations or religious mediators like the druids.

Irrespective of their meaning in the classical world, in the context of pre-Roman Gaul the best definition of *pagi* and *civitates* is that suggested by Gerritsen and Roymans (2006), for whom they were "politicized ethnic identities," i.e. ethnic groupings functioning as political communities. They were primarily *Personenverbände*, i.e. groups of people with

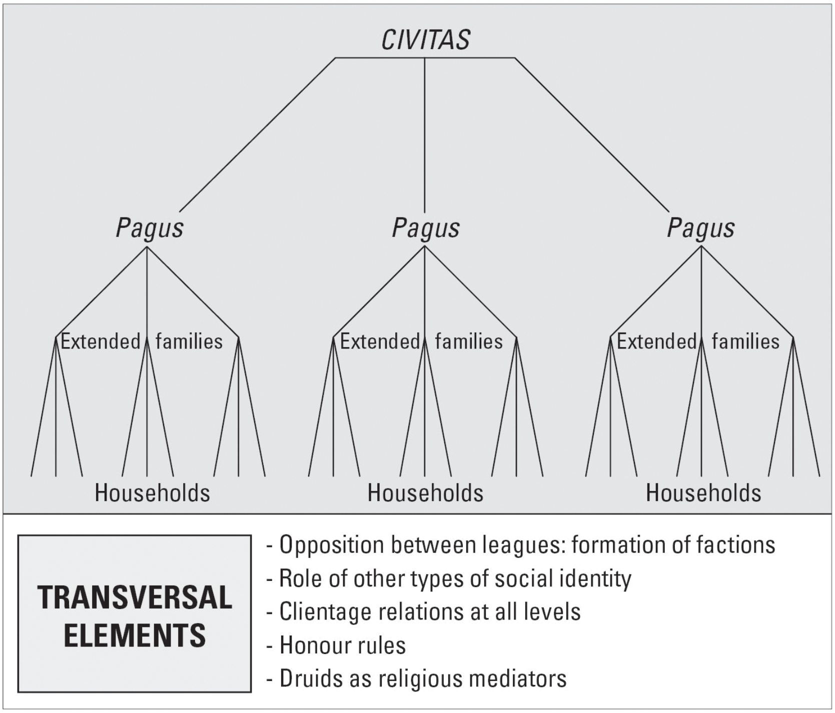
CIVITAS
Pagus
Pagus
Pagus
Extended families
Extended families
Extended families
Households
Households
Households
TRANSVERSAL ELEMENTS
- Opposition between leagues: formation of factions
- Role of other types of social identity
- Clientage relations at all levels
- Honour rules
- Druids as religious mediators

Figure 11.2 Top: simplified schema depicting the socio-political structure of Late Iron Age Gaul. Bottom: transversal elements fundamental for an understanding of Gallic societies (Fernández-Götz, based on Roymans, 1990 and Verger, 2009).

a common identity based on fictive kinship ties and the belief of descent from a common ancestor, the "founding hero" or "father of the people" (*Teutates*, from **teutā-* meaning tribe, people, see Almagro-Gorbea and Lorrio, 2011). Thus, two of the three names of Helvetian *pagi* known to us consist of a personal name and a *genus* suffix: *Verbigenus* and *Toygeni*. These were probably the names of the founding heroes who gave their name to each of the respective groups, similar to the 12 tribes of Israel who bore the names of the sons of Jacob (Fernández-Götz, 2013a). And there are indications that a similar ideological system also operated, although on a smaller scale, for the extended family groups, as we have a number of inscriptions from Roman times providing names of such entities, for example *Gesationes* (derived from *Gesatus*), *Arvagastae* (from *Arvagast*) and *Albiahenae* (from *Albius*) (Bauchhenss, 2007:272; Roymans, 1990:18). These names could refer to the mythical or real founders of the respective extended family groups, which would imply that each group worshipped its own "founding hero."

The Gallic *pagi* and *civitates* had their own ethnonyms, went to war or sued for peace, exchanged hostages, had political and military leaders, as well as political institutions such as the public assembly, the senate and sometimes also monarchy. A language of kinship—real or imaginary—seems to have been frequently used to express social relations; thus, the Ambarri were considered to be of the same blood as the Aedui (*consanguinei*), the Roman Senate gave the Aedui the title of *fratres consanguineosque* and the Remi considered the Suessiones *fratres consanguineosque suos* (Caesar, *BG* I, 11, 4; I, 33, 2; II, 3, 5). As stated by Roymans (1990:27): "Kinship on the tribal and supra-tribal levels was, in fact, an idiom used to express political and/or ceremonial relations. Kinship acted as a metaphor; its actual content lay elsewhere."

The organization of communal issues—such as regulating access to, and exploitation of, resources, as well as other matters concerning aspects such as collective defense or the administration of justice—would be dealt with primarily by holding assemblies and councils at various levels (*BG* VI, 20, 3). This would involve from regional meetings to others that could encompass an entire *civitas*—as mentioned by Caesar for example for the Treveri and the Aedui (*BG* V, 56; VII, 33)—or even a confederation of them such as the case with the *concilium commune Belgarum* or general assembly of all the Belgic peoples (cf. Fernández-Götz, 2014a:41–79). Public assemblies are known from scattered references from Gaul to Iberia, acting as important mechanisms of collective governance similar to the medieval Scandinavian *Things* (Sanmark et al., 2015–2016; in this volume, Thurston) or the Irish *Óenaig* (Gleeson, 2015). In an eminently rural world frequently characterized by transport difficulties, people would take advantage of these multitudinous encounters to deal with religious, social, economic and political matters at the same time (Alberro, 2006; Ligt and Neeve, 1988). These assemblies would represent an opportunity to meet each other, exchange goods and information, establish closer social ties, arrange marriages and attend religious ceremonies. Thus they helped to reaffirm the social order, power relations and the sense of belonging to a wider community. These would be the prime social arenas for the negotiation of power, the moment for taking important collective decisions such as establishing new laws, electing leaders or declaring a war (Fernández-Götz, 2013b). As stated by González Ruibal (2012:250): "Institutions such as senates, assemblies, councils, feasts, ritual specialists and magistrates not only helped to reproduce a ranked system, but also limited the agency of the aristocratic classes, redistributed social power and buttressed collective identity."

For the Late Iron Age, the archaeological discovery of public spaces (very often associated with sanctuaries) and certain mentions in the written sources both in Gaul and Iberia allow to propose that at least some of the general assemblies and council meetings took place within the large fortified settlements know as *oppida*. These sites emerged in wide parts of temperate Europe in the centuries immediately prior to the Roman conquest, from the late third century BC in central-northern Iberia (Ruiz-Zapatero, 2011) and predominantly from the late second century BC in Gaul and Central Europe (Fichtl, 2005). The *oppida* were not a homogeneous settlement category as they present differences in size (from around ten to several hundred or even more than 1,000 hectares), chronology (from one or two generations to long settlement histories) and functions (from veritable production hubs to sites with little evidence of interior occupation). Nevertheless, the majority of them have traits that allow us to classify them as "towns" or "cities," for example hosting a significant permanent population of several hundred or even several thousand inhabitants, constituting centers of production and trade and representing the scene for political assemblies and religious ceremonies. Large public spaces such as those excavated at Titelberg (Metzler et al., 2016) and Corent (Poux and Demierre, 2016) testify to the latter aspect.

Moreover, *oppida* were generally built in places that already had a long life story, with some of them serving as ritual gathering places for dispersed communities before their development into major settlements (Fernández-Götz, 2014b; Metzler et al., 2006). Among the main features of the *oppida* are the existence of different neighborhoods and of large unbuilt spaces within the perimeter of the walls. Even those sites with a significant internal occupation and population (e.g. Manching, Bibracte, Corent, Titelberg and Ulaca) present large open areas within the fortified space and some authors have classified the *oppida* within the so-called "low-density urbanism" model (Moore, 2017). This characteristic, which is not overly dissimilar to the picture offered by many medieval and later cities, highlights the role of "urban empty spaces" (Smith, 2008) as arenas of social negotiation and services. Given their recurring role as a principal

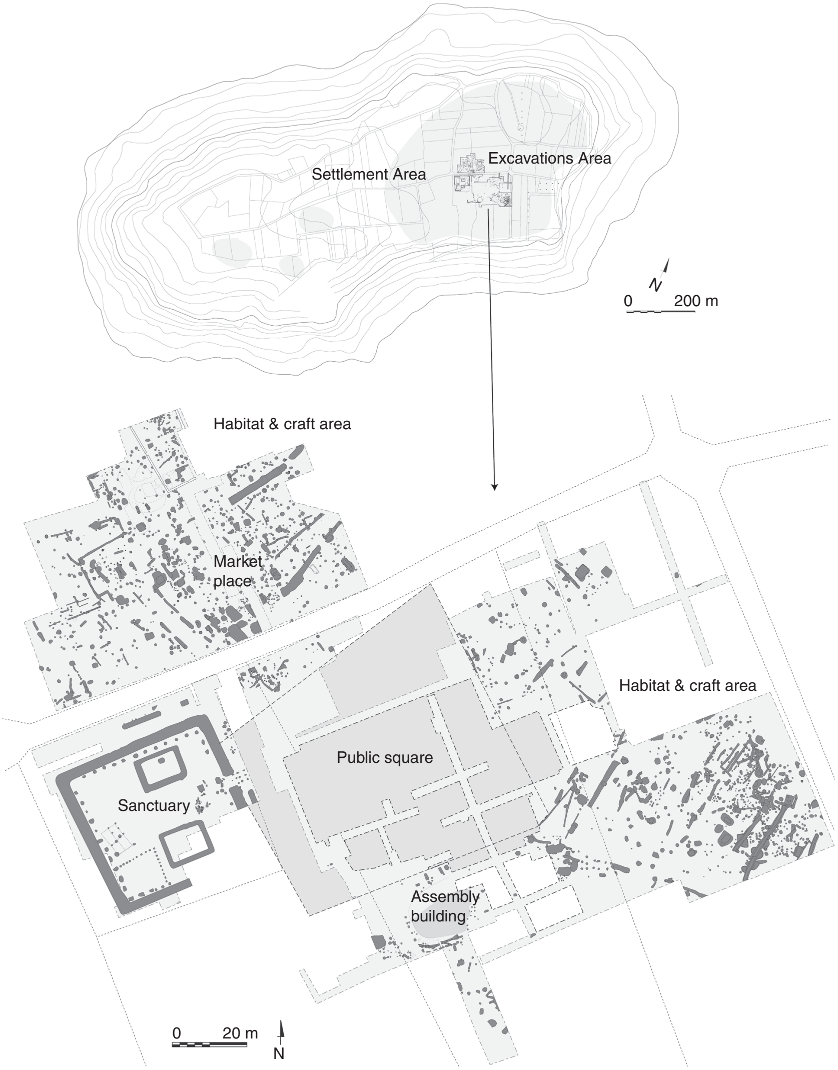
Excavations Area
Settlement Area
N
0
200 m
Habitat & craft area
Market place
Habitat & craft area
Public square
Sanctuary
Assembly building
0
20 m
N

Figure 11.3 Corent: excavation of the main public structures in the center of the *oppidum*, with public square, sanctuary, assembly building and market place (after Poux, 2014).

element of the *oppida*, these large open areas appear to have played a fundamental role in the negotiation of control of people and resources. Michael Garfield Smith's (1972) term "rurban" encapsulates the idea of the domination of many Iron Age agglomerations by unbuilt space, often more similar to farm landscapes than to our traditional notions of urban quarters. In fact, in many agglomerations the basic settlement units were enclosed farmsteads, which indicates a transfer of rural settlement patterns into a more confined space. In other words, this represented a kind of "translocated landscape" with extended households clustered together and occasionally also performing artisanal and commercial functions. This phenomenon suggests the nucleation of part of the rural population and a concentration of activities that were previously dispersed more widely in the landscape.

The interrelations between the urban and rural realms must have been intense and diversified, since in particular the former cannot be understood without the latter. In any case, despite the development of a number of towns, the Late Iron Age remained a fundamentally rural world, where the vast majority of the population lived scattered across the countryside (Buchsenschutz, 2006; Cowley et al., forthcoming). The *oppida* would have acted as nodal points for exchange and interaction, with the "empty spaces" contained within their walls serving a variety of economic and social purposes, from areas for agriculture and cattle breeding to places for political assembly and refuge for the rural population in case of danger. The importance of the *oppida* as Late Iron Age towns, therefore, goes far beyond the number of people that lived

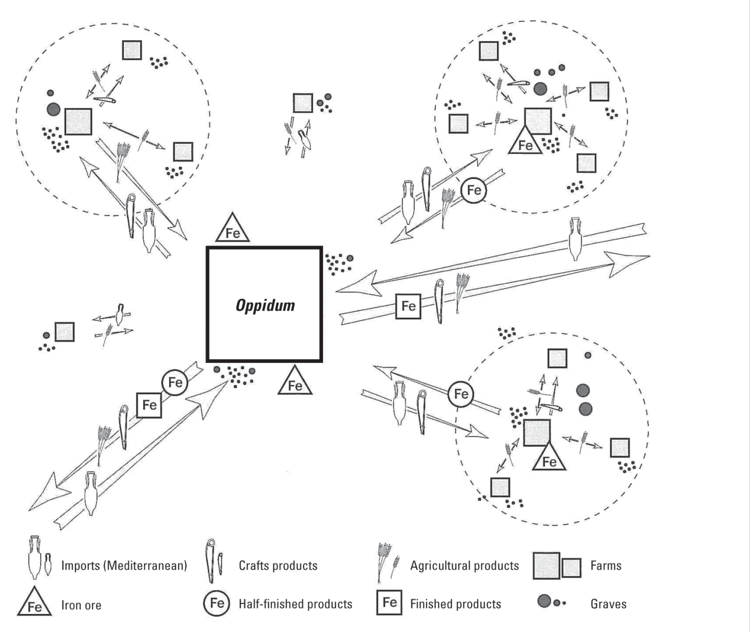

Figure 11.4 Theoretical diagram of relations between the *oppidum* and its surrounding rural territory, based on the data of the Titelberg area (after Fichtl, 2005, based on Metzler, 1995).

permanently within their walled perimeters. The *oppida* acted as central places for the wider rural hinterland and served as elements of identification and focal points for the creation of collective identities through the activities and performances that were carried out at them. But at the same time, there is ample evidence suggesting that members of the social elite often continued to live, at least during large parts of the year, in the countryside rather than within the fortified *oppida* (Adam and Fichtl, 2014; Alberro, 2006; Metzler, 1995:535). As was also the case during later historical periods, much of the economic, political and social power remained firmly anchored in the rural world (Crumley, 1995b:28).

As stated above, the *oppida* were places of congregation for the inhabitants of wider territories, with spaces for people to gather and perform a variety of social activities. The mechanisms regulating the flow of relationships between the inhabitants of rural and urban settlements might have been based on the existence of transversal social entities supported by real or fictive relationships, in which kinship, family and lineage could regulate interactions, social and administrative organization and territorial planning. It is very possible, for example, that some extended families had residences both within and outside the *oppida*, with their basis of power and subsistence remaining in the countryside while at the same time participating—regularly or periodically—at the social and productive activities carried out in the nascent urban centers. For the Early Iron Age, it has been proposed that the different neighborhoods of the large exterior settlement at the Heuneburg could have served as residential quarters of different kinship groups. The latter would have come together during the process of synoecism that led to the creation of the agglomeration, but still tried to establish a distinction among each other by means of an elaborate system of banks and ditches (Fernández-Götz and Krausse, 2013; Kurz, 2010).

The best evidence for tracing kinship relationships and lineages in the Iron Age comes from the cemeteries. Although the archaeological record is often open to multiple interpretations, in some cases it has been convincingly argued that certain groupings of graves within cemeteries are representing different lineages. During the time of the *oppida*, graves are generally scarce in temperate Europe, but in those regions for which we have an extensive funerary record some examples show the existence of ancestor worship over generations or even centuries (Fernández-Götz, 2014a:183–201; Metzler, 2006). An example is the necropolis of Wederath in the Hunsrück (Western Germany), where the spatial distribution of the La Tène funerary enclosures makes it possible to distinguish five large groupings of burials in the Iron Age cemetery, each of them with its own history and evolution, which could mainly be reflecting different family groups (Cordie, 2006; Verger, 2009:63). Some of them appear to be organized around older barrows, which would perhaps have been considered the funerary monuments of the ancestors who founded the lineages.

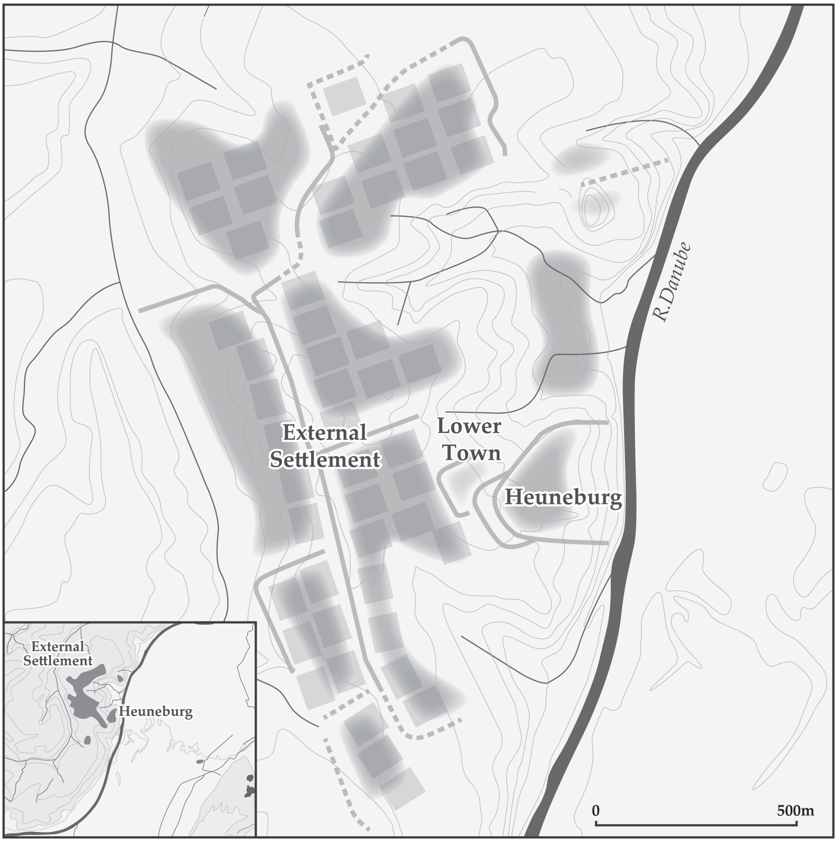

Figure 11.5 Plan of the Heuneburg agglomeration in the early sixth century BC, with division of the exterior settlement in different neighborhoods (after Fernández-Götz and Ralston, 2017).

The "town and land" community of medieval Soria: a useful analogy for Late Iron Age societies?

Having reached this point, we think that a look at the "town and land" (*villa y tierra*) community of medieval Soria can provide some interesting elements of reflection about how Late Iron Age societies *could have* worked—at least partially. While we are not proposing at any point to make a direct comparison, nor to extrapolate the medieval model in a literal way to the Iron Age, we think that it can serve as an example that expands our corpus of known analogies beyond the traditionally employed medieval insular information and therefore has some inspirational value. While the Irish sources can still be a useful analogy for certain aspects, although never a direct "window" into the Iron Age (Jackson, 1964), the lack in them of urban centers represents a limitation for comparisons with the *oppida* societies.

The "town and land" (*villa y tierra*) communities were administrative entities that arose between the eleventh and twelfth centuries AD in central Spain as a type of socio-political and spatial organization of the lands conquered by Castile as part of the so-called *Reconquista* (Spanish and Portuguese for "reconquest") process of Muslim territories. More than 60 examples of "town and land" communities have been documented with varying sizes of territories and polynuclear structures in which people and spaces were grouped into *collaciones* (singular: *collación*). *Collaciones* were extended family structures with certain rural and urban territories attributed to them; they made up the land (*tierra*) and they all had their own meeting space in the town (*villa*). Each "town and land" community had a different number of *collaciones* depending on how many family groups they comprised, the size of the land and their subsistence mobility needs. To give an example, the "town and land" community of Burgos comprised 14 *collaciones*, Sepúlveda 15, Ávila 19, Segovia 34 and Soria 35.

In terms of scale, the "town and land" communities are probably comparable to the *pagi* of ancient Gaul, with the *collaciones* being similar to Iron Age extended family groups or clans. This was a system of kinship relationships based on cross-sectional organizational structures. The mechanisms regulating the interactions between the *collaciones* of a "town and land" community can best be explained following a heterarchical network model, although they were simultaneously part of a wider hierarchical system established by the Castilian crown.

In this paper we will focus on the Soria "town and land" community, which has an extensive bibliography (e.g. Asenjo, 1999, 2012; Martínez Díez, 1983:147–197) and has been previously used as an analogy for explaining the social model of Bronze Age communities (Asenjo and Galán, 2001). Soria was the third largest "town and land" community, with an area of around 3,000 square kilometers, more than 300 villages and 35 *collaciones* under its jurisdiction (Martínez Díez, 2006:9). King Alfonso I, the Battler, conceded rights to the town of Soria in 1120 in which the municipal model was established. The main aim of this was to repopulate the land and reorganize the existing population. Because of that, this form of organization was the result of the agreement between the kinship groups that populated the territory before and the representatives of the Castilian monarchy. The *collaciones* structured the political, social and religious life of both rural and urban nuclei. Each *collación* comprised a kinship group united by real or imaginary blood ties or specific pacts or agreements (Asenjo, 1999:132–135, 2012) and possessed a series of villages, generally between six and eight, spread across the land. The distribution of the population in the territory of each of the *collaciones* combined different land uses, soil qualities and resources, in such a way as to guarantee the subsistence of the family groups.

Each *collación* had its own "neighborhood" in the town, whose material reflection was a small collection of houses, a parish church for their patron saint and a cemetery (Asenjo, 1999:46–49; Asenjo and Galán, 2001:322). The town of Soria was the meeting place for the members of the family group and the place where the different *collaciones* got together. It was the space for socialization, where weddings, funerals and religious festivals were held and the council took its decisions. During the St John's Day festival, at the summer solstice, the inhabitants of the land of Soria went to the town, where they set up their residences for a short period (Asenjo, 1999:49). They erected tents or built houses of perishable materials, bringing their flocks and herds and other goods with them. This annual meeting was where family and social ties were strengthened, making it a propitious time to trade, discuss business, make pacts and arrange marriages. The material appearance of the town of Soria was that of a walled enclosure with a perimeter of some 4,000 meters that surrounded the 35 neighborhoods (one for each *collación*), each with its parish church and cemetery. The enclosure of Soria comprised an area of more than 100 hectares, with enough open space to accommodate all the inhabitants of the land, goods and animals (Asenjo, 2012). The town was, therefore, the symbolic center, the nucleus of the social and religious authority, where the remains of the ancestors lay and power was in the hands of mayors and judges elected from the ranks of the *collaciones* and the rural knights.

Each *collación* resolved its problems within its own structure, as the basis of the political, social and religious life of the extended family group. However, matters that concerned the "town and land" community as a whole—such as defense—came under the jurisdiction of the higher body, the council. The council was a political and administrative institution made up of the highest-status members of the *collaciones*. It was, therefore, an assembly of the kinship hierarchies (Asenjo, 1999:45). The council had nineteen members, eighteen mayors and a judge chosen from among the members of the 35 *collaciones*. The functions of these mayors consisted of catching wrongdoers and imparting justice, while the judge enjoyed executive powers that gave him the authority to call a council meeting, direct the militias and collect taxes. There was also a wide variety of official posts, with the occupants ensuring the efficient functioning of the community; they included an executioner, public scribes, investigators and messengers (Asenjo, 2012).

The people's mobility between the town and the different locations of the land was a key subsistence strategy. According to Asenjo (1999:49),

> the inhabitants of the Land of Soria were closely linked to the town, as they maintained strong family and social links within the framework of the *collación*, while they lived in their villages, where they bred their livestock and planted their crops.

Over time, there was a progressive loss of this mobility on the part of the inhabitants of the town and the land, due to the permanent establishment of the population in the villages of the land. Consequently, this caused a rupture in the links between the town and the land, resulting in jurisdictional disputes between the parish clerics in the town of Soria and those of the tithe-paying villages, as the inhabitants of the villages refused to pay the tithes of the town churches. This conflict led Alfonso X, the Wise, to order a population census in 1270 in order to control and facilitate the distribution of tithes and the collection of other taxes (Asenjo, 1999:46–50).

The 1270 census was a fiscal document designed to record the number of taxpayers. Therefore, the key element it embodied was the degree of population mobility. Based on the latter, it was possible to see a person's degree of integration in the *collación* and the extent of the ties with the town and the village. Three types of tithe were recorded: first, the residents who had been settled in the same place for several generations; second, the inhabitants who did not live in the same location for the whole year; and finally, the so-called *atemplantes* or *acomendados* were individuals who had considerable freedom of movement, even between the *collaciones*. This last figure broke with the rigid kinship structure and fostered the uprooting of families to the benefit of powerful lords (Asenjo, 1999:50–53, 74). Moreover, women were present in the census in all three categories, but were generally linked to the references regarding sedentariness, near to the land and immovable goods; guarantees of kinship and its interests (Asenjo, 1999:139–140). Finally, the main power groups profiled in this social framework were the lords and the rural knights (Asenjo, 1999, 2012). The lords were older males, the main representatives of the family groups that comprised what were perceived as natural hierarchies. Their social position was clear in the 1256 jurisdiction, given the large number of times they were mentioned, as well as the complexity of their titles. The lords boasted a series of rights inherent to their status as proprietors and titles, such as the "*sennores del ganado*" (lords of the livestock), the "*sennor de las gallinas*" (lord of the hens) or "*de las aveias*" (of the bees). The power of the lords was not only over the resources, but also over the people, as is reflected in the judicial status they established with the "*iugueros*" (ploughmen), who maintained a relationship of profound dependency with the lords through agreements to carry out certain tasks.

Conclusion

What can be inferred from the "town and land" model for our understanding of Late Iron Age societies? There are obviously some important differences that need to be taken into account, including the fact that the medieval example formed part of a large state structure (the Castilian kingdom) and related to a powerful church organization. There is also no direct continuity between the medieval kinship groups and their Late Iron Age counterparts in the region of Soria, as they were separated by more than 1,000 years and numerous historical events—including the Roman rule, the Muslim period and the Christian *Reconquista*. Nevertheless, using the "town and land" model just as an analogy and not a direct comparison can lead to some useful reflections that help us to conceptualize the interrelationships between urban and rural areas and the simultaneous structuring of social groups around principles of kinship and territoriality.

The organization of the territory between different *collaciones*, each of them with different properties in both the rural and urban spheres, would resemble a complex mosaic in which different kinship groups organized their subsistence and communal activities in a non-linear, heterarchical way. Despite being part of a hierarchical state system, they were nonetheless granted a notable degree of autonomy, at least in the initial stages. These forms of both hierarchical and non-hierarchical networks of personal and inter-personal relationships were embedded in a complex system of urban-rural interactions. It is tempting to see some possible resemblances with Late Iron Age social organization in a context of emerging urbanization.

The seasonal meeting of the members of the *collaciones* in the town for celebrations such as the St John's Day festival, with its simultaneously religious, political and economic components, can be seen as a parallel to the periodically held collective gatherings at the *oppida*. People that spent most of the year in their countryside residences went to the fortified centers for some days or weeks in order to take part in wider communal events, as a way of reaffirming their identity as a group but also as members of a wider socio-political entity. Going a step further, at an ideological level, we can see certain resemblances between the veneration of the patron saints of the individual *collaciones* and the pre-Christian worship of the "founding heroes" of extended kinship groups. From a functional and even material perspective, there are similarities between the structure of the *oppida* of temperate Europe and the town of Soria. Both were the focal points of the territories they governed and both were political, administrative and religious centers. They were the communities' key meeting and trading places, had areas where the inhabitants of the rural environment could gather and were the seats of the main government organs such as councils and assemblies. In the medieval example, we saw how each extended family group (*collación*) was represented in the town by a neighborhood. The urban structure of many *oppida*—both in Gaul, Central Europe and Iberia—was made up of agglomerations of houses forming neighborhoods. These agglomerations may have corresponded to some type of relationship between their inhabitants, beyond that of a simple neighborhood, perhaps sometimes indicating kinship ties between their members in a way similar to the medieval *collaciones*. The appropriation of space by the builders and the dependent relationships that would have been established between the different domestic units could have been linked to some kind of real or imagined kinship ties.

To sum up, while we are not proposing that the "town and land" model can serve as a one to one parallel for Late Iron Age *oppida* societies, we think it can constitute a useful analogy that helps inspire new ways of reflecting on the evidence. While there are surely many other appropriate historical and ethnographical analogies, we hope to have at least provided some "food for thought" for the difficult but fascinating task of understanding Iron Age societies.

Acknowledgments

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Note

1 Further general processes were "*devolutions*"—movement back toward rank and egalitarian societies—and a *cyclical* process of movement around these structures, failing to reach permanent stratification and state structures. In fact, human beings devoted a considerable part of their cultural and organizational capacities to ensure that further evolution did *not* occur (Mann, 2012 :39).

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Part IV

Ritual landscapes and monumentality

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12 Empires of stone, politics of shadow

The Historical Ecology and political economy of mortuary monuments in Mongolia (1500 BC–1400 AD)

Erik G. Johannesson

To many, Mongolia conjures up images of a vast steppe landscape, intersected by meandering rivers flowing from taiga covered highlands; a pastoral landscape populated by nomadic herders and studded by white felt tents (*gers*) surrounded by herds of livestock. To others, Mongolia is synonymous with the conquering armies of the destroyer of civilizations par excellence, Chinggis Khan, and the rising dust of advancing cavalry and the barbarian horde. Yet, Mongolia is also home to an astoundingly rich prehistoric landscape of stone monuments and megaliths that date as far back as three and a half thousand years ago. Stone monuments are, in fact, staple features on the Mongolian landscape and are found with such frequency that in some places they outnumber the *gers* of modern herders. They range from the inconspicuous to the ostentatious, from small stone cairns and stone lines, to massive mounds surrounded by stone rings and carved stelae. They are such a fundamental part of the Mongolian countryside that to travel through Mongolia is to travel through an unfolding landscape of prehistoric stone monuments.

The spectre of Chinggis Khan looms large over Mongolia and his renown can at times overshadow much of the country's colorful history. The sheer scale of the empire he and his sons forged makes it easy to forget that this was only one of several steppe empires to emerge from Mongolia. Before the Mongol Empire there was the Xiongnu Empire (209 BC–200 AD), against whom the Chinese built the first Great Wall, the Turk Empires (550–730 AD), which stretched from Mongolia all the way to the Crimea and the Uighur Empire (744–830 AD), which ruled from its capital at Ordu-Baliq as far as the Caspian Sea. Each of these steppe polities produced a dynamic suite of ritual and mortuary stone monuments that contributed to the ritual landscape that stretches across Mongolia today. Yet, the practice of building stone monuments predates these empires, dating back to the Late Bronze Age (ca. 1500–700 BC). In fact, the monumental landscape of Late Bronze–Early Iron Age (1500–300 BC) is sometimes referred to as a golden age of monument construction with many of the monument archetypes emerging at this time. This chapter traces diachronic change in mortuary landscapes in Mongolia in relation to the major nomadic polities mentioned above. Steppe politics frequently involved manipulating stone monuments and associated mortuary practices, making funerary contexts some of the most visible components of nomadic polities' political economy. The political economies of these empires and their antecedents used funerary monuments respectively to subvert, integrate, or appropriate preceding architectural narratives and symbols present in the landscape. In doing so they each contributed distinctive elements to an evolving and dynamic landscape of stone monuments that now form an integral part of Mongolian cultural heritage.

The richness of Mongolia's prehistoric landscape made an indelible impression on me when I first encountered it and I was struck not only by its sheer scale, but how comparatively sparsely it was represented in Western scholarship. Even today, almost two decades later, Mongolia is still only marginally featured in archaeological literature on the Eurasian steppes. A number of recent international research projects and publications have begun to address this lacuna and have contributed several new perspectives on the emergence of nomadic pastoralism in the region and social complexity among prehistoric nomads. Yet, in spite of this recent growth in archaeological scholarship, Mongolia is still characterized by relatively few radiocarbon dates and chronological horizons are primarily based on similarities in monument construction, mortuary practices and pottery styles, which can vary from region to region. In addition, until recently archaeological data has derived largely from mortuary contexts which, being intentional and symbolically-laden constructs, represent very particular kinds of archaeological materials. A further challenge is that most of these contexts have been disturbed prior to study by looting and tomb reopening events transpiring soon after the interment that aimed to destroy or desecrate the body of the deceased (Johannesson, 2016). Given these circumstances, Carole Crumley's landscape approach and the theoretical model of Historical Ecology guide the following consideration of the abundance of Mongolian prehistoric stone monuments and how prominently they feature in their environmental setting.

Historical Ecology centers on the complex and reflexive history of human interaction with their environments and emphasizes that humans routinely reshape their physical environments, which in turn influences their choices and worldview (Crumley and Marquardt, 1990; Balée, 1998). An intrinsic component of Historical Ecology is that the landscape is impacted by human action and thus comes to embody a historicity of its own wherein the past is physically inscribed in the landscape. In emphasizing diachronic perspectives and advocating process over discreet events, Historical Ecology offers a potential solution to the low chronological resolution in Mongolia. The paradigm's focus on landscapes also is particularly useful in Mongolia where since the early 2,000s, the preponderance of archaeological studies have concentrated on dynamic landscapes of stone monuments.

Landscapes have been a major theoretical focus of archaeology inquiry for several decades. Research on landscapes tends to follow two major theoretical traditions. The first centers on the ecological landscape and focuses on human adaptation and innovation in light of environmental constraints (e.g. Billman and Feinman, 1999; Whitmore and Turner, 2001), while the other emphasizes the cultural construction of landscape and focuses on symbolic and political processes (e.g. Ashmore and Knapp, 1999; Anschuetz et al., 2001). Historical Ecology in many ways bridges these traditions and topical emphases by highlighting the commonalities between them and by reminding us that people project culture onto nature (Crumley, 1994). In its multi-dimensional and multi-scalar approach, Historical Ecology can also be seen as an agglutinating paradigm, linking various disciplines including anthropology, biology, geography, economics, demography and more. However, applying Historical Ecology to Mongolian prehistory is seemingly hindered by a lack of information about its past ecology; i.e. the biotic history of the region as well as attendant subsistence strategies. For example, dates and evidence of a transition to animal husbandry are still largely provisional and place the adoption of a mixed economy relying on both husbandry and agriculture somewhere between the fifth and second millennium BC (Okladnikov and Derevianko, 1970), which is too imprecise to be practical. Further, dates for the adoption of nomadic pastoralism, horse domestication and horse riding remain elusive in Mongolian archaeology; and, at present, are thought to have been introduced to the region sometime before 1500 BC (Broderick and Houle, 2012). Paleodietary studies based on dental microwear and stable carbon and nitrogen isotopic analyses of archaeologically recovered human remains from Bronze and Iron Age contexts have yielded varied results (Machicek, 2011; Beach, 2017). In sum, it has not been possible to infer or reconstruct the biotic history, ecological constraints, or dietary realities at play in Mongolian prehistory in any meaningful way. Hence, Historical Ecology, in the sense of studying the interplay between humans and the natural environment, is seemingly an impractical paradigm for Mongolia. However, the results of my research on Mongolian mortuary landscapes over the years, coupled with the enduring influence of Crumley's encouragement to explore the multivalent nature of human–environment relationships, has convinced me that a Historical Ecology perspective is applicable in Mongolia, albeit with a few caveats.

Historical Ecology emphasizes the landscape as a unit of analysis and highlights human acts and ideas as factors that shape the environment and how people experience it. The landscape, then, is both the setting and the result of the complex interaction between humans and the natural environment and need not require distinguishing between what is cultural and what is natural. This is particularly true for landscapes involving funerary monuments, since mortuary ideologies not only straddle the natural and supernatural, but also anchor ritual behavior to cosmology and ways of seeing the world. Hence, ritual monuments can be seen both as cultural constructs and as forming an integral part of the cosmological landscape and natural order. In this view, Historical Ecology can be used as a framework to explore an evolving landscape comprised of mortuary and ritual monuments that are as much a part of the natural environment as rivers, mountains, or any other natural feature. Consequently, the mortuary landscape can be seen as palimpsests of successive funerary stone monument traditions that develop and change over time and which form an intrinsic part of the natural landscape, imbued with cultural meaning referencing cosmological, supernatural and historical ideas. From this perspective, where the landscape incorporates ritual stone monuments, and where cosmology replaces the biotic environment, a Historical Ecology approach is still possible.

Stone monuments and monumental landscapes are further useful to identify political processes in highly mobile societies, which has proven challenging for archaeologists. Since mortuary monuments often represent large-scale communal undertakings and embody shared ritual and cosmological frameworks, they offer insight to social interaction and communal integration even in societies that are nomadic with dispersed settlements and low population densities. Whereas habitation sites and settlement data from nomadic pastoralists can be difficult to recover archaeologically, mortuary monuments are prominent and prolific features in the Mongolian countryside. In a sense, nomads become stationary in death and thereby more visible archaeologically. This notion of static and visible loci in the landscape was also useful to nomadic leaders and presented venues in which to manipulate politically and cosmologically charged symbols, as well as opportunities for ostentatious displays of power. Hence, it was through these fixed and visible components of nomadic life that many steppe polities chose to convey politically oriented information, precisely because they drew people together, entailed reification of social and political relationships, involved communal building projects and endured to communicate symbolic information to others who traversed the same landscape. Funerary ideology regulating mortuary monuments thus constituted an asset that actors could manipulate to their own advantage, and had the benefit of resulting in features that would endure over time. Control over mortuary regimes can therefore be seen as constituting one facet in the broader political economies of steppe empires. Turning to an overview of monument traditions in Mongolia these observations serve to underscore how political process can be discerned in nomadic societies through a diachronic examination of mortuary customs.

Monuments of the Mongolian Late Bronze and Early Iron Age (1500–209 BC)

The Late Bronze Age–Early Iron Age in Mongolia corresponds to a period of significant social change, the development of mobile equestrian pastoralism and increased social complexity. The monumental landscape of this period is characterized by a series of monument traditions, albeit with considerable temporal and geographical overlap, that share broad ideational framework emphasizing highly visible monuments, individual variation in monument form and composition, a predilection for east–west orientation and a general lack of investment in the funerary assemblage. The major monument types (described below) include *khirigsuurs* in the western and central portions of Mongolia, shape-burials (*shorgooljin bulsh* in Mongolian) in the eastern and southern regions of the country, deer-stones and so-called slab burials. These monuments currently represent the most common and well-known Late Bronze–Early Iron Age monuments in Mongolia, and it should be noted that other monument types exist during these periods, albeit they are few and have not been well documented.

Khirigsuurs (1400–800 BC) are by far the largest and most abundant Late Bronze Age monument in Mongolia and the majority of research on the Bronze Age has been directed toward this monument type (Allard and Erdenebaatar, 2005; Frohlich et al., 2008; Houle, 2009; Jacobson-Tepfer et al., 2010; Wright, 2007). *Khirigsuurs* typically consist of a central mound with a circular or quadrangular enclosure of aligned stones beyond which there may exist "satellite" features in the form of rock piles and small stone rings. However, this loose description masks an incredible array of variation. *Khirigsuurs* can vary in size from ten to 50 meters in diameter to

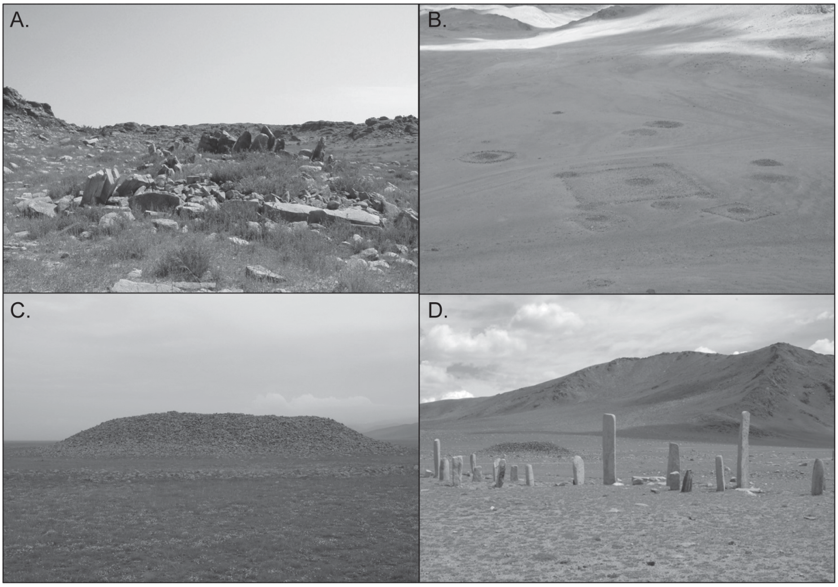

Figure 12.1 Shape burials, *khirigsuurs* and deer stones: a) shape-burial at Baga Gazaryn Chuluu, south central Mongolia (photo BGC Archeological Project courtesy of William Honeychurch); b) *Khirigsuur* cluster near Khovd, western Mongolia (photo by author); c) large *khirigsuur* in Khanuy River Valley, central Mongolia (photo by author); d) deer-stones and *khirigsuur* (photo courtesy of Bryan K. Miller).

over 400 meters, and are found both individually and in clusters. Some have irregular shaped enclosures, while in others, the area between the mound and the enclosure is filled with rocks to create a type of platform. Although some scholars have argued that large, externally complex *Khirigsuurs* situated in "central places" such as the confluence of valleys and drainages represent communal ritual monuments (Houle, 2010; Wright, 2014), the preponderance of evidence from excavation and archaeothanatology indicate that they are burials (Frohlich et al., 2008; Johannesson, 2011; Littleton et al., 2012). The body of the deceased was placed in a small stone cist or shallow burial pit within the central mound, accompanied by few if any grave goods.

A roughly contemporaneous monument type found predominantly in the eastern half of Mongolia is the shape-burial, or *shorgooljin bulsh* (1400-1000 BC), which consists of a surface demarcation of rocks in a roughly hour-glass shape, oriented east–west, that covers a shallow burial pit. The border of the monument usually comprises larger stones, sometimes placed in a two-course alignment, with the interior filled with a layer of unworked rocks and large standing stones are occasionally placed upright along the short ends of the monument. Shape-burials are typically modest in size, ranging from three to nine meters in length, but some can be substantially larger, measuring as much as 40 meters long. The body of the deceased was placed face down or on its side in the center of the monument in a shallow pit without any coffin or stone cist. Only a handful of artifacts have been recovered from shape-burials, and none with any regularity, suggesting inclusion of objects in the assemblage was arbitrary and uneven (Johannesson, 2011, 2016). The regional distribution of shape-burials is still being established (Amartuvshin and Burentogtok, 2008). They have been recorded in eastern and central Mongolia as well as south Siberia, but their western boundary remains uncertain. To date, not much research has been directed at shape-burials and much work still needs to be done to clarify their temporal and geographical distribution, as well as their relationship to other monument types.

A somewhat later monument type, though overlapping both temporally and geographically with *khirigsuurs*, is the deer-stone. Taking their name from the stylized cervids with which many are decorated, deer stones are stelae carved on all four sides with elaborate designs consisting of deer, elk, chevrons, bands, arcs and circles. Some deer-stones feature human faces carved in the uppermost sections, which combined with what some researchers have interpreted as belts and daggers may suggest that at least some are anthropomorphic representations (Okladnikov, 1954; Jacobson, 1993). Deer-stones are found in western and east-central Mongolia and are typically placed within enclosures of rectangular stones. They have been noted to occur in proximity to *khirigsuurs* and frequently include similar satellite features of small stone circles and mounds. The meaning and function of deer-stones is still intensely debated. Some scholars have suggested that in north-central Mongolia, deer-stones and *khirigsuurs* formed part of a broad

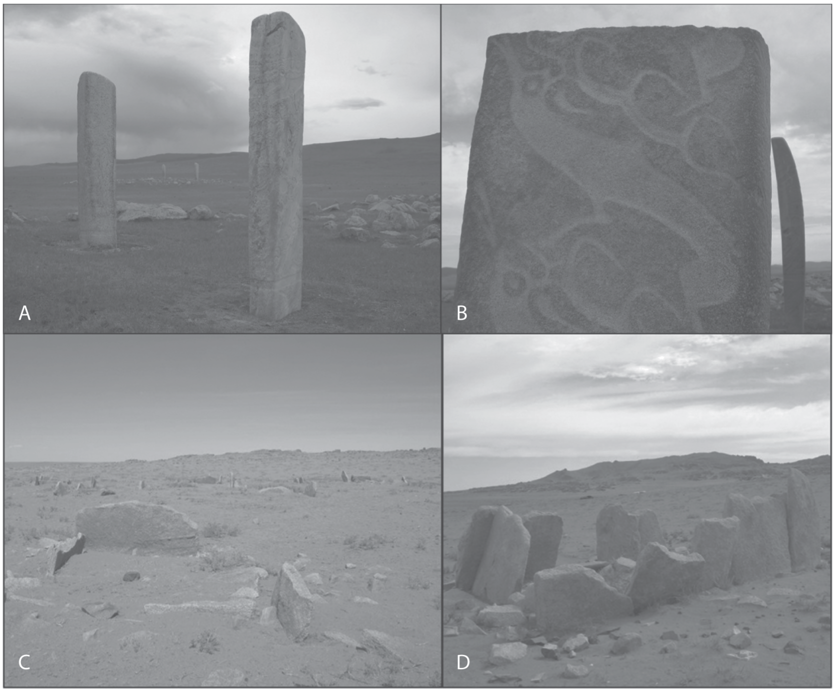

Figure 12.2 Deer-stones and slab burials: a) deer-stones in Khanur River Valley, Central Mongolia (photo by author); b) close-up of deer-stone imagery (photo by author); c) slab burials at Baga Gazaryn Chuluu (photo by author); d) slab burials at Baga Gazaryn Chuluu (photo by author).

ceremonial system that included group-oriented activities as well as funerals (Fitzhugh, 2009; Wright, 2007). Others have proposed that deer-stones represent cenotaphs or representations of powerful individuals, heroes, or divine figures (Okladnikov, 1954; Jacobson, 1993). Whichever may be the case, deer-stones represent significant material investment in the creation of prominent and highly symbolic monuments that at times incorporated similar ritual features as khirigsuurs beyond strictly burial contexts.

Another and substantially later mortuary development, slab burials (800-300 BC), are rectangular arrangements of upright stones enclosing a shallow burial pit oriented east–west that is covered with horizontally placed stone slabs or a layer of small rocks. The average size of these monuments ranges from two to four meters in length, but can be substantially larger. Slab burials are found individually or in small clusters and are most prevalent in eastern Mongolia where they are found in larger numbers at sites such as Baga Gazaryn Chuluu and Tsagaan Uul, but are also encountered in south Siberia as well as central Mongolia (Johannesson, 2011, 2016; Tsybiktarov, 2003). Although they are sometimes placed separately, slab burials are often situated in association with Late Bronze Age mortuary monuments and seem to use or co-opt similar topographical settings. They have also been documented to incorporate small stelae placed east of the monument and often aligned with its northeast corner (Bemmann and Brosseder, 2017). These stelae often appear within rectangular enclosures of flat stones and in some cases several stelae are placed in a row extending east of the monument (Bemmann and Brosseder, 2017). Slab burials have not been the target of substantial research and their relationship to other monument types has yet to be determined. At present they are commonly held as emblematic of increasing social stratification and restricted access to sumptuous funerary treatment, but in the absence of further research this view must be considered speculative.

Much research still needs to be done on Late Bronze and Early Iron Age monuments in Mongolia, but in spite of the lacunae in our knowledge, some overarching patterns are evident. The preponderance of material and labor investment during these periods went toward the monuments themselves rather than to grave goods or the adornment of the deceased. The primary focus was on producing highly visible, often individualized and ostentatious monuments, and commemorating the dead and the community that built them via grand architectural displays.[1] Importantly, funerary behavior does not appear to have been standardized or rigid. Broad guidelines clearly existed regarding the basic components of each monument type; for example, for *khirigsuurs* there should be a stone mound, an enclosure, possibly additional features and so on, but within these bounds there was ample room for innovation and choice. The same is true for other monuments, which tend to correspond to a few overarching principles, with recurrent examples of idiosyncratic variation. In this way, mortuary ideology during these periods allowed for individuals to be prominently inscribed in the landscape, and by extension, also enabled local lineages of leadership to use mortuary stone monuments as a form of symbolic and political currency. While the cosmological frameworks referenced in these “architectural narratives” can no longer be accessed, the recurrence of an east–west orientation across these monument types and the fact that succeeding types were consistently placed in proximity to previous monuments, suggests shared recourse to similar ideational reference points. This is further evident in deer-stone builders’ use of similar architectural satellite features as *khirigsuurs*, hence drawing on available frameworks of reference in the landscape and applying these in new symbolic arenas that were distinct from the building of *khirigsuurs*.

Xiongnu period monuments (209 BC–200 AD)

Chinese historical texts describe how the powerful Xiongnu leader Motun united the nomadic tribes of what is today Mongolia and south Siberia into a powerful steppe confederacy and declared to the Han imperial court that all these peoples were now considered Xiongnu. The formation of this polity represents the first nomadic steppe empire in East Asia and set the stage for intermittent war and diplomacy with the Han Empire for the next four hundred years. The emergence of Xiongnu material culture regimes can be characterized as a watershed in Mongolian archaeology (Honeychurch, 2015; Johannesson, 2015) and radically transformed funerary practices, mortuary monuments and their potential to produce idiosyncratic commemorative narratives (Johannesson, 2016). Xiongnu tombs fall into two categories: the large terrace tombs of the uppermost social echelon, which are found only in select locales in Mongolia and southern Siberia, and the more ubiquitous ring tombs which came to replace other funerary monuments across the region.

The former are large north–south oriented platforms with a ramp-like structure projecting southward, while the latter comprise a circular surface demarcation of stones ranging from four to ten meters in diameter (Khatanbaatar, 2007; Miller, 2011; Torbat et al., 2003). These superstructures covered deep north–south oriented burial shafts ranging in depth from two to five meters with extensive funerary assemblages, which in the case of terrace tombs were as deep as twenty meters and truly monumental. Unlike previous monument traditions, Xiongnu tombs rarely occur individually and are most frequently found in cemeteries or small clusters. Another distinction is a change in the loci of investment in Xiongnu tombs, with the majority of labor and material directed at the funerary assemblage rather than the visible components of the monument. Further still, Xiongnu funerary ritual upends over a millennium of referencing east–west alignments in monument and burial orientation in favor of a north–south orientation. These changes do not appear to be incidental.

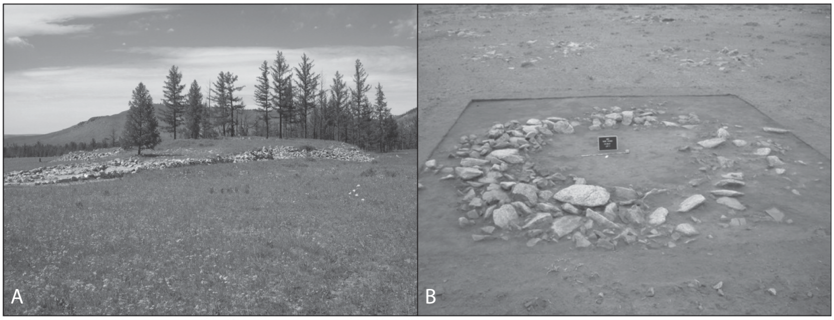

Figure 12.3 Xiongnu mortuary monuments: a) Terrace tomb at Gol Mod 2, Central Mongolia (photo by author); b) Ring tomb at Baga Gazaryn Chuluu with the topsoil removed. Additional tombs can be seen in the background illustrating their low visual impact (photo BGC Archaeological Project courtesy of William Honeychurch).

On closer examination, Xiongnu mortuary regimes represent a conspicuous and comprehensive inversion of preceding traditions and practices (Johannesson, 2016). Whereas pre-Xiongnu monuments offer opportunity for variation and idiosyncracy, Xiongnu monuments exhibit regional standardization, with any variation restricted to the subterranean portions of the assemblage where it cannot be seen. The externally visible components of Xiongnu tombs on the other hand, are identical. On a regional scale, inclusion, standardization and uniformity become the norm with the advent of Xiongnu Empire in everything from monument composition, to their arrangement in clusters and cemeteries, to the inclusion of similar objects and their placement within the assemblage. Whereas a *khirigsuur* in western Mongolia can be very different from a *khirigsuur* in central Mongolia, Xiongnu tombs are essentially the same anywhere they are found. This suggests regionally observed conventions in funerary ritual as well as the incorporation of local groups who previously built individualized monuments into a broader Xiongnu political sphere. From the perspective of memory work, Xiongnu mortuary practices preclude the production of idiosyncratic commemorative narratives, especially architecturally. Instead, the entirety of mortuary repertoires conveys an impression of uniformity and similarity that reflects an overtly Xiongnu identity. Mortuary ideology can thus be seen as forming one facet in a broader Xiongnu political economy, which came to dominate ideational frameworks of reference across the region. At every juncture of the funerary ritual, from the consistent placement of faunal remains in the northern section of the tomb, for example, to the repetitive nature of monument construction, Xiongnu mortuary practices were promoting and emphasizing membership and affiliation to the central polity, while subverting previous frameworks of reference and ways to inscribe the dead in the landscape. This was not always successful and there are a handful of examples where Xiongnu ring tombs exhibit east–west oriented burial shafts or where Xiongnu tombs were placed alongside earlier monuments. Notably, however, most of these occur at the empire's peripheries where the polity had less control and where competing customs may have been more difficult to suppress (see Johannesson, 2016). Nevertheless, the comprehensive and regional implementation of Xiongnu mortuary regimes across Mongolia offers an example of how political centralization can be identified in nomadic communities.

Xiongnu mortuary monuments and associated funerary practices remain remarkably consistent for the duration of the polity's 400-year existence. As the Empire collapsed towards the end of the second century AD, however, Xiongnu tombs disappear and monument construction in Mongolia become dispersed and localized, with no over-arching monument tradition emerging to replace Xiongnu forms. For the next three hundred years, tombs and grave markers continue to be built, but they are largely inconspicuous features, often consisting only of a few surface stones, if any. From a landscape perspective, mortuary monuments seemingly disappear in the wake of

Table 12.1 Discontinuity and inversion of Xiongnu funerary practices vis-à-vis preceding monument types

	Khirigsuurs	*Shape-burials*	*Deer-stones*	*Slab burials*	*Xiongnu*
Visibility	High	High	High	High	Low
Orientation	East-West	East-West	East-West	East-West	North-South
Loci of investment	Monument	Monument	Monument	Monument	Assemblage
Placement	Individually / Small Clusters	Individually	Individually / Small Clusters	Individually / Small Clusters	Clusters / Cemeteries
Individually distinct	Yes	Yes	Yes	Yes	No
With other monument types	Yes	Yes	Yes	Yes	No
Standardization	No	No	No	Some	Yes
Depth	Shallow	Shallow	Shallow	Shallow	Deep
Coffin	No	No	N/A	No	Yes
Stelae	Yes	Yes	Yes	Yes	No
Imports	Rare	Rare	N/A	Rare	Common

the Xiongnu Empire's dissolution. The general absence of discernible grave types could be explained by a dearth in published archaeological research on this period, or that succeeding political centers generally lay outside Mongolia during this time. Importantly, though, a substantive mortuary monument tradition for the centuries between the Xiongnu and later Turk period has yet to be identified.

Turk period monuments (550–830 AD)

Turk political history is known from Chinese sources and from long runic inscriptions that represent the first indigenous historical texts in Inner Asia. These impart that, in the face of political instability, the Turk leader Bumin engineered an uprising against the weakened Rouran Khaganate in 546 AD and quickly assumed control of the Altai region in western Mongolia. Over the next several years, united under Bumin and his sons, the Turks expanded their range of influence, eventually coming to hold sway over the steppe regions from the Ordos Plateau in the east to the Crimea in the west. While not studied archaeologically to the same extent as Xiongnu or later Mongol periods, Turk material culture is well represented via ceramic and epigraphic evidence as well as ritual stone monuments (Wright and Amartuvshin, 2009; Smahelova, 2014). Turk mortuary monuments are somewhat variable, but usually take the form of either inhumations or cremation burials. The former typically consists of the interment of the deceased in an east–west oriented shaft grave marked on the surface by circular arrangement of rocks, often in a thick ring or "paved" circle. The latter consists of an east–west oriented rectangular enclosure, usually three to four meters in length, built out of stone slabs and with a stele placed nearby, usually to the monument's east. Rows of standing stone stele and stone alignments, *balbals*, were often built extending east or southeast from the monument. Most stele are flat and undecorated, while some feature clan symbols (*tamgas*) and others are anthropomorphic. In addition to mortuary monuments, Turk period monuments include stelae, enclosures or altars and standing figures (*kamennye babas*) (Bemmann and Brosseder, 2017). The latter are sometimes included within or in proximity to Turk mortuary sites.

At first glance, Turk ritual monuments exhibit tremendous heterogeneity and variability, which scholars have sought different ways of explaining, from localized ritual traditions co-existing under Turk hegemony, to differentiated ritual treatment based on socio-political status (see Smahelova, 2014). However, this puzzling diversity is best explained via Turk monuments' relationship with preceding stone monument traditions. Archaeologists working with Late Bronze Age and Xiongnu period monuments have noted that many include evidence of Turk period activities (Amartuvshin and Honeychurch, 2010; Johannesson and Machicek, 2008). Examples include the placement of *balbals* within, or emanating from, monuments of earlier periods and the placement of ceramics and other objects on top of monuments. In one conspicuous example, a previously looted and damaged Xiongnu tomb was rebuilt during the Turk period and in the process made to appear "Turk" (i.e. with a thick circular band of rocks on the surface). Upon excavation of this burial, Turk period ceramics were recovered within the reconstituted superstructure of the tomb, while the burial chamber and assemblage included Xiongnu period materials (Johannesson and Machicek, 2008) In short, during the Turk period there is a discernible and acute interest in the monumental landscape of preceding periods that includes revisiting and engaging with existing monuments. Turk monuments and symbols have not been positively identified in the region prior to the emergence of the Turk polity, but instead appear in the wake of its consolidation of its military and political gains. The polity's ritual landscape is thus not an expansion of pre-existing indigenous forms, but rather an innovation or byproduct following the polity's rise to power. In asserting and inscribing its authority on conquered territory the central Turk authority, like the Xiongnu before them, incorporated ritual monumentality and mortuary ideology in its political economy. In doing so, it drew on pre-existing forms in the landscape, in particular, Late Bronze–Early Iron Age monuments, which after-all were the most visually prominent monuments in the landscape, but also on the circular ring tombs of the Xiongnu period. Consequently, Turk cremation tombs are reminiscent of slab burials, including the placement of stelae to the east of the monument. Large stelae often resemble deer-stones in their placement in similar rectangular enclosures, and those that are anthropomorphic mirror the faces featured on some deer-stones. Inhumation burials also seem to take on the form of the Xiongnu ring tomb, albeit with a broader band of surface stones. Such is the similarity in form to other monuments in Mongolia that Turk period inhumation tombs can sometimes not be identified conclusively without excavation.

Internal tension and civil war eventually caused the Turk Empire to fragment and collapse in the seventh century, only to reemerge under a new dynasty that ruled until the middle of the eighth century. Following the disintegration of this Second Turkic Empire, the Uighurs, part of the broader community of Turkic people, rose to power and formed the short-lived Uighur Empire, which lasted from 744 to 840 AD. The ritual monuments of these latter polities are not well documented and mortuary contexts in particular appear to become highly variable. Overall, however, the raising of stelae continues and these are often only distinguishable from those of the First Turk Empire via their use of Uighur script. As the Uighur polity disintegrated, the construction of ritual monuments on a regional scale ceases and mortuary practices discontinue the use of ostentatious funerary markers.

Mongol period monuments (1200–1400 AD) and discussion

When the Mongol Empire formed under Chinggis Khan the mortuary landscape in Mongolia again coalesced into a cohesive monument tradition.

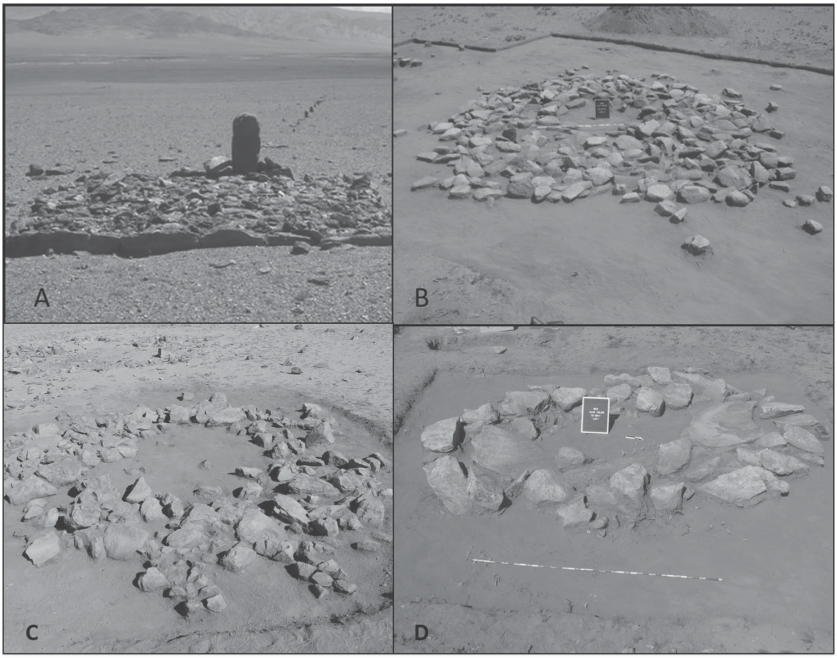

Figure 12.4 Turk, Xiongnu, and Mongol period monuments. a) A rectangular burial and bal line, western Mongolia (photo courtesy of Esther Jacobson-Tepfer, copyright Gary Tepfer); b) A Xiongnu ring tomb reassembled during the Turk period according to Turk customs (photo by author); c) Xiongnu ring tomb at Shombuuzin Belchir, Western Mongolia (photo by author), and d) Mongol period tomb at Baga Gazaryn Chuluu (photo BGC Arch Project courtesy of William Honeychurch).

Mongol burials consist of a roughly circular arrangement of medium size rocks that cover a north–south oriented inhumation burial. The body was placed in supine position either in a coffin or small pit roughly 0.5 to two meters below ground. Mongol burials were placed in small clusters of three to five burials, which tend to be dispersed across the landscape (Amartuvshin and Honeychurch, 2010; Youn et al., 2007). These burials, as can be surmized from their description, closely resemble Xiongnu ring tombs and their funerary assemblages tend to comprise similar objects. In many instances, Mongol period grave sites are found a short distance from Xiongnu period clusters, such as at Alag Tolgoi in central Mongolia (Amartuvshin and Honeychurch, 2010), which further attests that similarity in form and placement represented attempts to link Mongol traditions to the memory of a powerful forerunner. Mongol mortuary practices can thus be seen to appropriate the funerary repertoires of Xiongnu tombs, and by association, the symbolic and historically laden gravitas associated with them.

In doing so they follow a precedent already set by the Turk and Xiongnu empires before them which involved editing the mortuary landscape to convey political affiliation and by making symbolic and historical claims by situating their monument tradition in relation to preceding practices. During the Xiongnu Empire, this involved efforts to undermine and subvert the ideational frameworks and reference points of the preceding ritual and cosmological order by inverting and reordering mortuary monuments to form a new tradition that emphasized a regional and distinctly Xiongnu character, reflecting the power of the central authority. In situating itself in the ritual landscape, which had been inactive for a few centuries before its emergence, the Turk polity drew on the entire range of available monuments, creating a tradition with its own flavor that can nonetheless be difficult to distinguish from the monuments it draws its inspiration from. Finally, in drawing on Xiongnu forms, the material vestiges of the first nomadic empire in East Asia, the Mongol Empire positioned itself as the symbolic successor and rightful heir to hegemony on the steppes.

This brief overview of Mongolian prehistory illustrates a historical and semiotic relationship between Xiongnu, Turk, and Mongol period mortuary traditions that becomes evident by viewing the funerary landscape in its entirety and diachronically. Within the framework of Historical Ecology, these examples remind us that the built environment, the cultural landscape, has also a history that becomes entangled with cosmology and ways of seeing the world. The built landscape is a manifestation of history, a socially constructed memory of the past that informs and contextualizes the present. In developing their funerary traditions, each steppe empire drew on existing monument forms and their respective historical legacies to contextualize and promote its own political ideology. In the process, each contributed new facets to an evolving palimpsest of mortuary traditions that today makes up the Mongolian cultural landscape and that is as inextricably part of its natural environment as the plants and animals that inhabit it. This last observation underscores the point made earlier, that the environment comprises both the biotic and cultural components of the landscape, and in turn is what makes Historical Ecology apropos to the study of the mortuary landscapes of nomadic steppe empires. It is this utility and versatility that ultimately makes the Historical Ecology paradigm such an effective concept in archaeology. Crumley's multi-scalar approach is especially fitting for Mongolia, a country that is often referred to as a land without fences.

Note

1 Commemorative narratives, as I have used them in the essay, refer to the architectural features or symbolic repertoires, embodied by these monuments. The precise meaning behind these, e.g., the difference between the square or circular enclosure of a *khirigsuur*, is not accessible to us, but would have formed a sort of "architectural narrative" discernible by other *khirigsuur* builders.

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13 A Landscape of Ancestors

Looking back and thinking forward

Matthew Leigh Murray and Bettina Arnold

This essay is inspired by Carole Crumley's innovative examination of landscape as the historical manifestation of human-environment dynamics and social complexity. In 2002, we completed the excavation of two early Iron Age burial monuments (Tumuli 17 and 18) near the Heuneburg in southwestern Germany as part of the "Landscape of Ancestors" project (Arnold, 2012; Arnold and Murray, 2002, 2015, 2016; Garstki, Arnold and Murray, 2015). Our ongoing research is focused on the Heuneburg mortuary landscape of the late eighth to fifth centuries BC and its utility as a window on the social configurations of a society without writing. Our perspective on that landscape was substantially influenced by ideas of space, time and society originally absorbed from *Regional Dynamics: Burgundian Landscapes in Historical Perspective* (Crumley and Marquardt, 1987). That volume presented an innovative multiscalar approach to human history in a particular region across time. It explored long-term relations of authority and power, legitimacy and control through analysis of landscape as an ongoing negotiation of the sociohistorical and physical contexts of human life.

In this essay, we consider results of our research on one of the mounds, Tumulus 17, which challenges the way Iron Age mortuary landscapes are often imagined. We combine the multiscalar and multitemporal framework in *Regional Dynamics* with complementary theories of fragmentation and place-making. We think of a burial monument as a "landscape" in miniature representing multiple meanings. Mortuary landscapes provide a context for the examination of overlapping localized behaviors at different scales through time, such as objects, bodies, funerals and monuments. The complex biography of a mortuary monument intersects with related histories inscribed across larger manipulated landscapes. A holistic examination of such multiscalar narratives reveals unexpected facets of early Iron Age life reflected (or refracted) through death.

There are four parts to our contribution. First, we provide an introduction to the biography of Tumulus 17 that includes pottery fragments as links in a chain of larger events across the mound. Second, we examine the manipulation of body and object in the mound through textile wrapping.

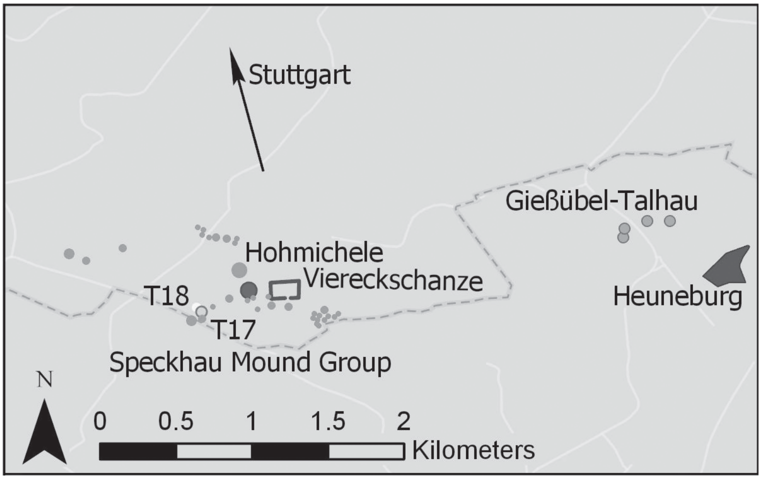


Figure 13.1 Location and plan of the Landscape of Ancestors Project near the Heuneburg in southwest Germany (Landscape of Ancestors Project). Map by Christopher Van de Ven. Light Gray Canvas basemap from Esri and data sources from Esri, DeLorme, HERE, MapmyIndia.

Third, we explore the incorporation of mortuary monuments into elaborately manipulated landscapes of life, death and memory. We conclude with the latest archaeometric discovery of a previously undetected dimension of early Iron Age mortuary behavior.

Landscape of Ancestors: Tumulus 17

Early Iron Age archaeological landscapes are networks of deposits composed of human remains, objects and fragments of objects (Murray, 2016, 2017). The theory of fragmentation and the related idea of enchainment underscore how identity and social practice are constituted in a dynamic material environment of object, person and place (Chapman, 2000, 2008; Chapman and Gaydarska, 2007). Material objects form local histories—or biographies—that influence future action. Fragments are exchanged, linking places and people across time and creating a chain of relationships.

In the first phase of the "Landscape of Ancestors" project, Bettina Arnold and I directed the excavation of Tumulus 17 in the Speckhau mound group, part of the mortuary landscape associated with the early Iron Age (640–450 BC) Heuneburg hillfort in southwest Germany. In this mound, remains from a primary funeral event were manipulated across several generations. Periods of burial under and in the mound were punctuated by episodes of mound maintenance and visitation (Arnold, 2010a; Murray, 2017; Schneider, 2007).

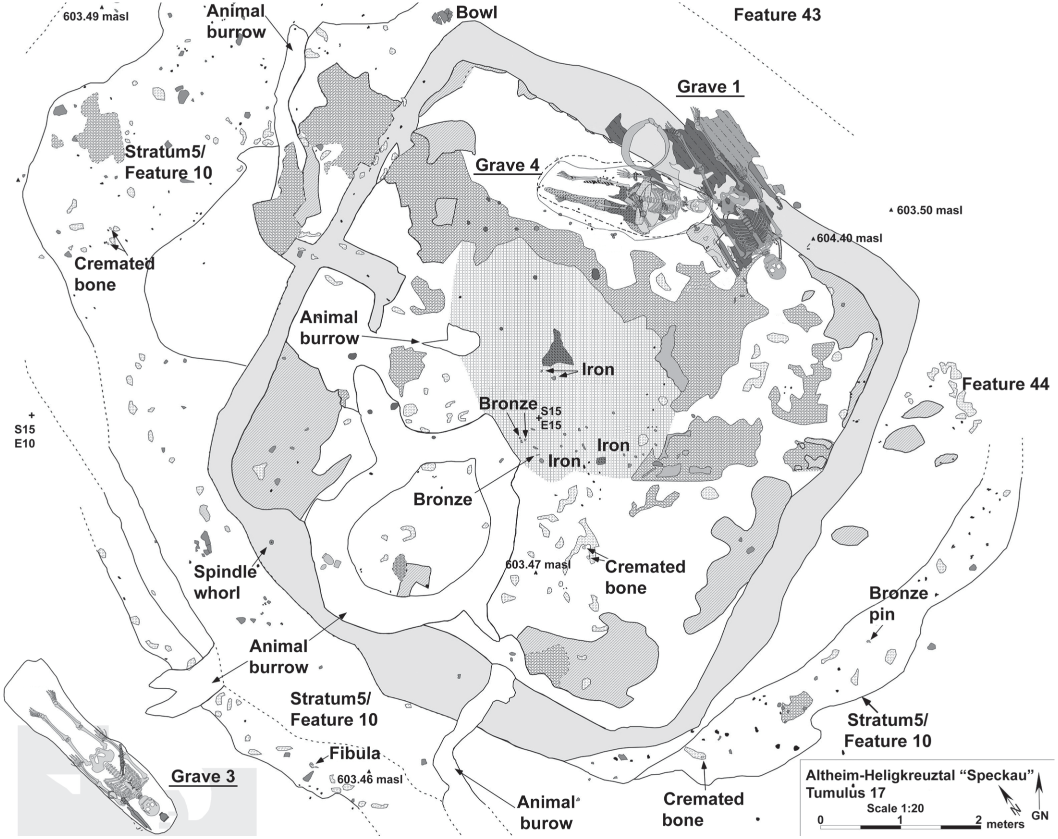

603.49 masl
Animal burrow
Bowl
Feature 43
Grave 1
Stratum5/ Feature 10
Grave 4
603.50 masl
604.40 masl
Cremated bone
Animal burrow
Iron
Feature 44
Bronze
S15 E15
S15 E10
Iron
Iron
Bronze
Spindle whorl
603.47 masl
Cremated bone
Bronze pin
Animal burrow
Stratum5/ Feature 10
Stratum5/ Feature 10
Fibula
Grave 3
603.46 masl
Animal burow
Cremated bone
Altheim-Heligkreuztal "Speckau"
Tumulus 17
Scale 1:20
0
1
2 meters
GN

Figure 13.2 Composite plan of Tumulus 17 showing features of the primary burial and secondary burials (Landscape of Ancestors Project).

Around 650 BC, the founding event of this mound was the burning of a body and the subsequent interment of burned bone, funerary materials and pyre debris within a rectangular ditched enclosure. After deposition, a small earthen mound was constructed over the enclosure. The mound surface was then scattered with burned pottery fragments, bronze debris, bone and charcoal. Refitting analyses established that pottery fragments in the mound deposit match sherds in the remnants of the central cremation, so the debris scatter on the mound surface includes residues from the founding funeral event. After additional soil layers were added, the mound was capped with a massive layer of sterile clay. About 100 years later, the mound was expanded and again used for burial.

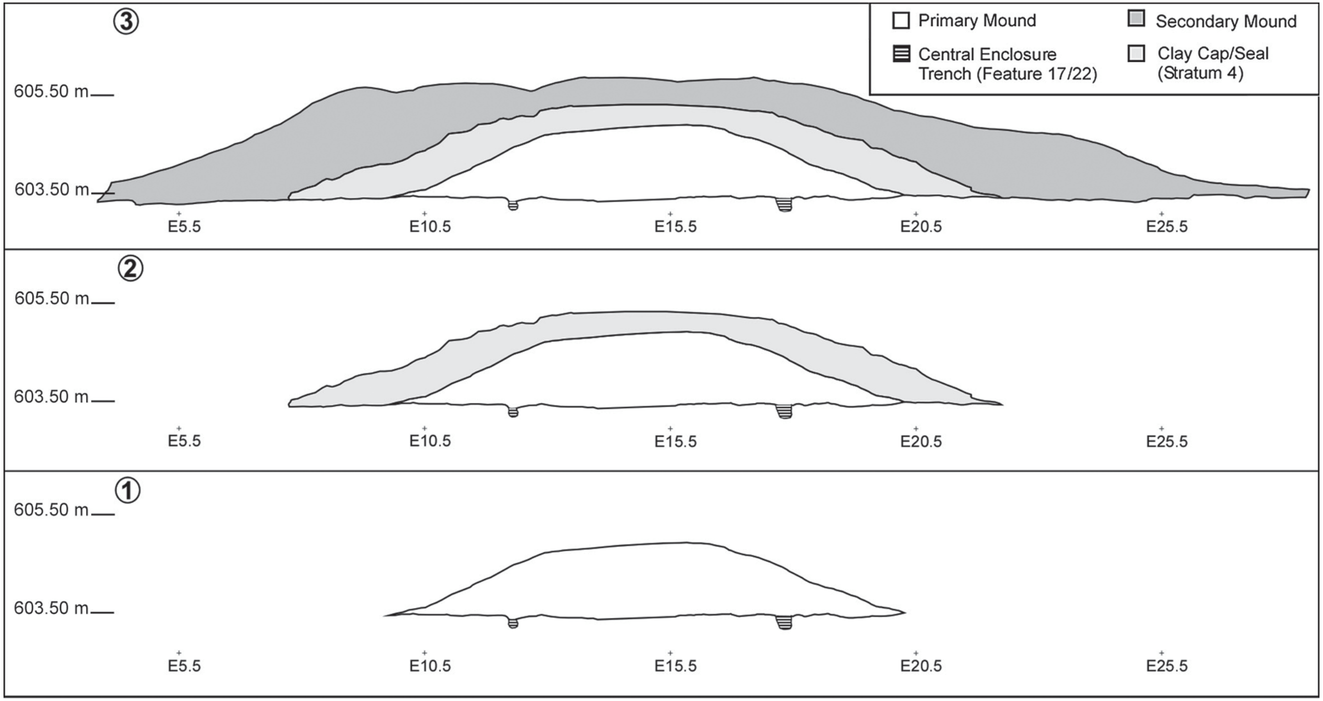
At the boundary between the sterile "cap" of the original mound and later mound fill, we discovered charcoal deposits, burned areas and small caches of stones and cultural debris. Seth Schneider (2007) suggests that some features represent the use of fire to "purify" the monument and prepare it for renewed funerary activity. From one feature in the later mound fill, we recovered another pottery fragment that joins with sherds from the debris scatter on the original mound surface. This fragment must have been placed in the mound several generations after the founding funeral event. The fragment is a link in a sequence of actions flowing across the mound that enchained (i.e., linked) living and dead, past and present (Murray, 2017).

The re-deposition of burial pottery in Tumulus 17 also reminds us that funerary rites may involve multiple events separated in time that link different kin aggregates, as famously described by Maurice Bloch (1971) in his study of the Merina of Madagascar. The first funeral and physical interment of the body occurs soon after death and by necessity involves only local relatives and their supporters, since there is often little time to gather together more dispersed kin. A second event is organized years later, providing an opportunity for all kin group members to participate in a recovery of the deceased's body and its reburial.

"Unwrapping" the Early Iron Age grave

After sealing of the original mound at Tumulus 17 and a period of maintenance during which materials that referenced the central cremation were reinterred, the monument was again used for burial. In the youngest burial (Grave 1) established in the late fifth century BC, a body was placed in a wooden chamber accompanied by a cauldron, sword, spears and a leather and iron helmet festooned with feathers. Laboratory examination and textile analysis of the grave assemblage revealed that all metal objects were wrapped in textiles when placed in the grave.

Since publications on textile remains from the sensational Hochdorf tomb in southwestern Germany (Banck, 1996; Banck-Burgess, 1999), it has become increasingly clear that cloth was used in burial assemblages to enshroud both persons and objects (e.g., Gleba, 2014; Gleba and Mannering,



③
605.50 m
603.50 m
E5.5
E10.5
E15.5
E20.5
E25.5
☐ Primary Mound
▤ Central Enclosure Trench (Feature 17/22)
▨ Secondary Mound
☐ Clay Cap/Seal (Stratum 4)
②
605.50 m
603.50 m
E5.5
E10.5
E15.5
E20.5
E25.5
①
605.50 m
603.50 m
E5.5
E10.5
E15.5
E20.5
E25.5

Figure 13.3 Major phases of construction in Tumulus 17 (Landscape of Ancestors Project), showing the enclosure associated with the founding funeral event covered by a small mound that incorporated debris from the founding event (Phase 1), the sterile clay cap (Phase 2) and the outer mound with later secondary burials (Phase 3).

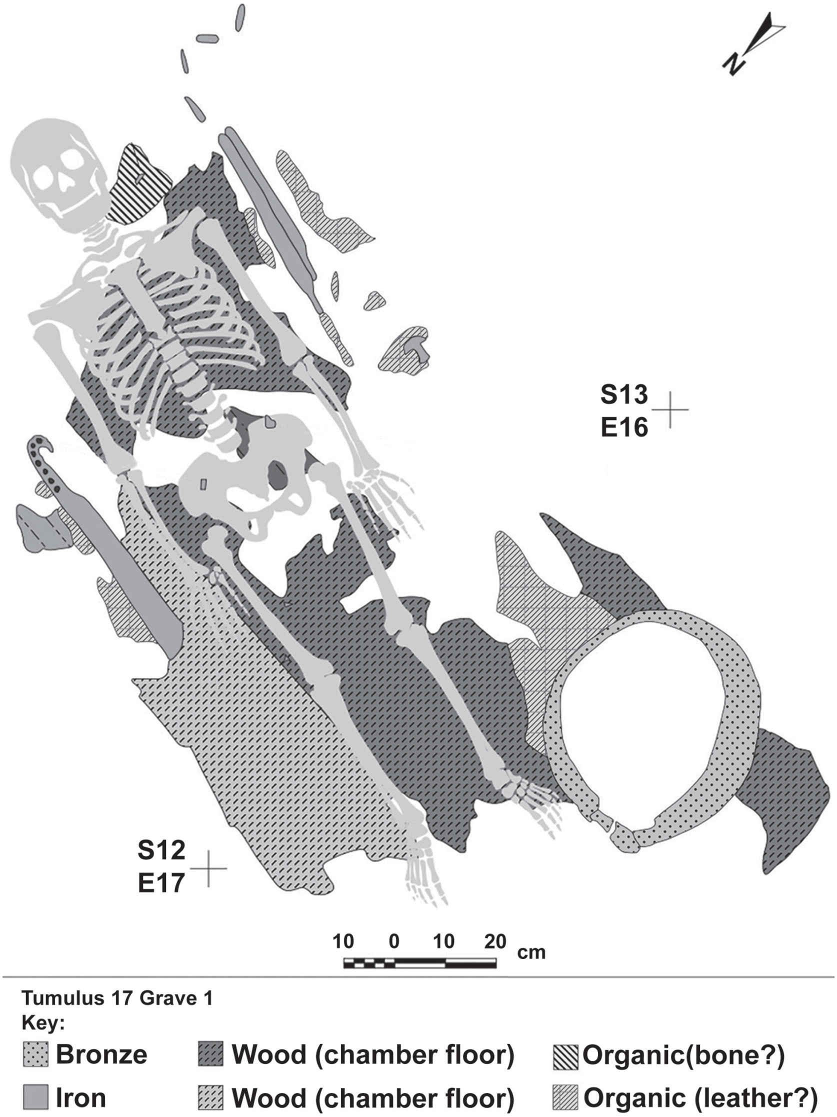

N
S13
E16
S12
E17
10 0 10 20 cm
Tumulus 17 Grave 1
Key:
Bronze
Wood (chamber floor)
Organic(bone?)
Iron
Wood (chamber floor)
Organic (leather?)

Figure 13.4 Plan of Grave 1 in Tumulus 17 (Landscape of Ancestors Project).

2012). In elite tombs at the Glauberg hillfort in west-central Germany (Bartel et al., 2002), funerary wrapping encompassed vessels, weapons and even personal adornment. The visual transformation of funerary materials through wrapping challenges assumptions about burial practice, memory and power.

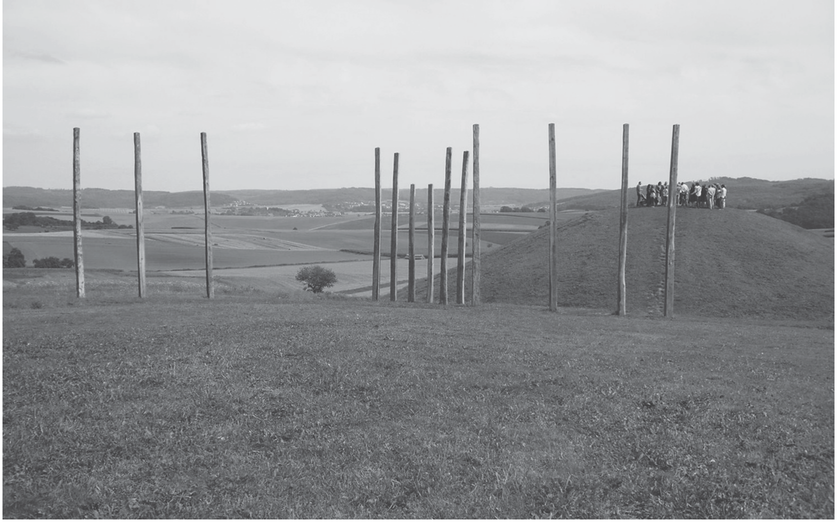


Figure 13.5 Contemporary view of the reconstructed Tumulus 1 at the Glauberg in Hessen, Germany (Matthew Murray).

The wrapping of body and object may reveal ontological person/thing distinctions in early Iron Age societies. Oliver Harris and John Robb (2012) argue for the recognition of multiple ontologies of the body. The fact that objects were "shrouded" in the grave much like a body suggests that there may have been less of a distinction between *person* and *thing* in the grave or during the funeral than we would recognize today. Perhaps burial *things* were understood to be synonymous with the deceased and perhaps these *things* underwent the same processes of transformation as the *living* and the *dead*.

In *Image and Response in Early Europe*, Peter Wells (2008) explores the visual impact of grave good wrapping as a way to enhance the visual and memory-making potency of funeral rituals by first drawing attention to—and then eliminating—important objects. The bronze surface of the flagon in Grave 2 at the Glauberg had been so intensely polished that it would have had the impact of a golden mirror (Bartel el al., 2002:163–164), yet that brilliance was concealed in the grave within a cloth and leather shroud. While Wells seems to imply that burial wrapping was intended to underscore how "absence makes the heart grow fonder," Johanna Banck-Burgess (2012, 2014) argues that wrapping was more a matter of "out of sight, out of mind." She suggests that the covering of the Hochdorf assemblage rendered the visible invisible, deprived symbols of wealth and power of visual impact and altered meaning and memory. Wrapping was therefore a symbolic gesture through which power was forgotten. Another possibility is that the shrouding was just the first in a series of stages of separation to be undergone by the deceased and the objects in the grave chamber as they passed from this world to the next

Gillian Feeley-Harnik (1989) explains that in Madagascar finely woven funerary shawls for wrapping corpses symbolize kin relationships. At first, people “silence” the dead by wrapping them but they then “make them speak” by unwrapping and rewrapping bodies in post-funeral processes. In this way, cloth and the act of wrapping and rewrapping physically and spiritually integrate the dead ancestors among the living descendants. The wrapping of an object, which was perhaps synonymous with the wrapping of a body, may also have represented a form of liminality, a transitional state that was—in Victor Turner’s (1967) celebrated turn-of-phrase—“betwixt and between.” If wrapping disguised the ontological status of an object, perhaps it also had the effect of inducing a liminal status—a thing that once was—but no longer is—and will be again. During these dramas, wrapping may create a transitory sense of community in which norms of distinction usually represented in material culture are de-emphasized (Turner, 1969). Wrapping alters reality, masking what once was and creating opportunities for new interpretations of social relations and community narratives.

The embodiment of mortuary place and landscape

In the European past, particular dead people were part of the every-day landscapes of the living (Murray, 1996, 2016, 2017) and burial monuments were referenced in direct ways, such as the placement of a Late Iron Age enclosure (Viereckschanze) next to the Hohmichele (one of the largest early Iron Age burial monuments in continental Europe) in the Speckhau mound group within 500 m of Tumulus 17 (see Figure 14.1). Graves and monumental cemeteries were theaters of enchained relations and they became elements of “embodied” landscapes that were manipulated to reinforce community narratives and place-making (Murray, 2016, 2017).

The embodiment of place is a form of “memory-making” that links people and materials across space—and time—since many of these embodied places are long-lived (Bradley, 1998; Tilley, 2004; Lake, 2007). This memory process was a community event that fixed certain representations and meanings through group performances that subsequently informed perception and future action (Barth, 1987). At least two processes of “embodiment” may be involved (Murray, 1996, 2016). First, in funerary practice, body remains may be displayed and then deposited in the earth, sometimes in—or under—permanent monuments. In the second process, the landscape is “lived” or experienced through movement and sensation of the human body. Landscapes of the early Iron Age were structured to “choreograph” these movements, often incorporating the “embodied” remains of ancestors. The choreography was a way of physically internalizing shared memory of people and place, a process that John Barrett (1999) has termed “inhabitation.” The burial monuments themselves are often arranged in ways that suggest intentional channeling of movement through physical and social space simultaneously, directing people through linear avenues of the dead in the approach to settlement sites in some cases and creating mound clusters that appear to represent communities in others (Arnold, 2002).

Chapman (2008:199) argues that the dispersion of fragmentary material culture across a landscape is a fundamental social practice that establishes and maintains enchained social relationships across multiple scales of human experience. We propose that embodied or inhabited places are linked in similar chains of reference.

In the past two decades, fieldwork in the surroundings of early Iron Age hillforts at the Heuneburg in Baden-Württemberg (Bofinger and Bofinger, 2008; Krausse et al., 2015; Kurz, 2010; Posluschny, 2007) and at the Glauberg in Hessen (Baitinger and Pinsker, 2002; Baitinger et al., 2010; Hansen and Pare, 2008) have uncovered complex "inhabited" landscapes. Extensive systems of linear earthworks were used to enclose habitations, guide movement and focus attention on mortuary monuments (Murray, 2016). In a particularly demonstrative reference to mortuary landscape elements, the massive gate of the outer settlement at the Heuneburg was aligned with an extramural grouping of paramount mounds, reminding anyone entering or leaving the settlement of a specific representation of power. The whitewashed mudbrick wall that encircled the site between 600 and 540 BC sent similarly complex messages of inclusion, exclusion and access to distant sources of political and economic potency (Arnold, 2010b; Arnold and Fernández-Götz, 2018).

At the Glauberg, one elite mound was situated at the end of a long passageway, where excavators uncovered a stone sculpture that depicts a nearly life-size human figure bearing a neck-ring, shield, sword and headdress (Herrmann, 2002). These representations are strikingly similar to objects uncovered in the mound's central interment. The statue, originally on top of the mound, was a depiction of personal authority that would have been recognized and remembered. Its eventual uneasy resting place in a ditch below the mound reminds us that society is always a "work in progress" and collective narratives are subject to reinterpretation. Shifts in mortuary practices throughout the Iron Age in these regions, especially from cremation to inhumation and back again, have revealed the existence of underlying social and ideological tensions that suggest that funerary rituals and perhaps especially the construction of mortuary monuments, played an important role in community integration and disintegration (Müller-Scheeßel, 2013). Integration is represented by the communal labor required to build the mounds and grave goods, but disintegration is represented by the bounded nature of the mounds themselves, which segregate and differentiate a subset of the population and mark them as separate from the rest.

Conclusion

We conclude our review of the "Landscape of Ancestors" with a brief discussion of the significance of a recent archaeometric analysis of ceramic sherds from Tumulus 17. Proteomic residue analysis of sherds from six different mortuary vessels undertaken by specialists at Purdue University and the University of Texas revealed the presence of peptides (protein fragments) from human blood, skin and internal organ tissues, in particular, brain and heart (Wiktorowicz et al., 2017). Five of the vessels were associated with the central chamber, including four decorated mortuary urns and a shallow bowl. The sixth vessel was discovered outside the central chamber where it was deposited during the founding funeral event.

The discovery of human blood and tissue in early Iron Age mortuary vessels in Central Europe is unprecedented. It may indicate a practice of body treatment that involved removal of blood and organs that were placed in mortuary vessels during the funeral. This process would have been an effective way to prolong display of the body during extended funeral events and its discovery in Tumulus 17 along with evidence of mortuary wrapping of objects, further transforms our appreciation of the multilayered, multitemporal and multiscalar complexity of funerary performances in mortuary landscapes of the early Iron Age. The removal of vital fluids and organs from the bodies of selected deceased individuals, a practice previously undocumented in early Iron Age Europe, may represent another stage in the phased separation process to which bodies and objects were subjected to in the mortuary context. It has been suggested that funerary processions involving the four-wheeled wagons, found in late Hallstatt mounds in this region, may have required some preparatory treatment of the bodies to allow them to be displayed for several days after death (Stegmeier, 2008); such a circumambulation of territory by the deceased would literally have constituted the laying of a postmortem claim to the landscape and the kinship network represented by the mourners participating in the processional.

Object, burial, monument, landscape—in early Iron Age Europe these were not just scales of analysis but chains of increasingly complex relationships. Funerals—and the subsequent burial of funerary debris—effectively embodied place. Integration of older funerary fragments in renewed burial monuments reworked memory and interpretations of social integration across generations. Bodies and objects were manipulated during funerary events. Monuments were integrated into manipulated landscapes—or *memoryscapes*—to promote specific interpretations of authority, power, legitimacy and control (Murray 2016, 2017). Landscapes were—and are—deliciously complex and in her work Carole Crumley helped to weave the foundational fabric of contemporary regional studies.

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14 Civic-ceremonial transition at Lambityeco, Oaxaca, Mexico

Gary M. Feinman and Linda M. Nicholas

In his comparative tome on early civilizations, Bruce Trigger (2003:3) wrote: “the most important issue confronting the social sciences is the extent to which human behavior is shaped by factors that operate cross-culturally as opposed to factors that are unique to particular cultures.” Faced with this diversity, social scientists have long struggled to coalesce on a systematic comparative frame to comprehend variation in political relations (Feinman, 2012; Feinman and Nicholas, 2016a). Through examinations of diverse power relations in the past, and how they shifted over time, Carole Crumley has provided an important roadmap to expand the two-dimensional causal analyses (focused on hierarchical complexity and local cultural tradition) that over generations had become calcified in archaeological thought and interpretation (Feinman, 2012). Through the concept of heterarchy—that power relations may take distinct forms even in societal contexts of seemingly comparable scale and/or complexity—Crumley (1995:1) emphasized both variability in political relations and the contingency and flux of these interpersonal formations. Crumley’s (1987, 1995) perspectives underpinned our early quest (with colleagues) to define and contrast “corporate” and “network” political formations and to expand the frame for and to explicate political diversity and change (Blanton et al., 1996; Feinman, 2000:35). And so, it is our great pleasure to contribute to this volume in honor of her research and contributions.

Contemporary interdisciplinary research focused on human cooperation and collective action has provided new investigatory avenues to conceptualize and understand axes of diversity in human relations of leadership and power (Blanton and Fargher, 2008, 2016; Carballo and Feinman, 2016). In this essay, we highlight the continuum between more collective social networks in which power and voice tend to be more distributed and less collective (autocratic) relations that are characterized by the concentration of power and clout (Blanton and Fargher, 2008, 2016:100–101; Feinman, 2012, 2013; Feinman and Nicholas, 2016a). To summarize arguments elaborated more fully elsewhere (e.g., Feinman, 2001, 2016), less collective social formations generally are associated with greater concentrations of wealth, mechanisms of leadership succession reliant on linear descent, and relatively exclusive contexts for ritual and political action. In contrast, more collective formations are associated with rituals in open public spaces, where devotion to shared aims may be expressed through practices that feature social inclusion and coordinated participation (Blanton, 2016; Blanton and Fargher, 2011). Although the present focus on degrees of collective action does in key respects mirror the corporate-network continuum (Feinman,

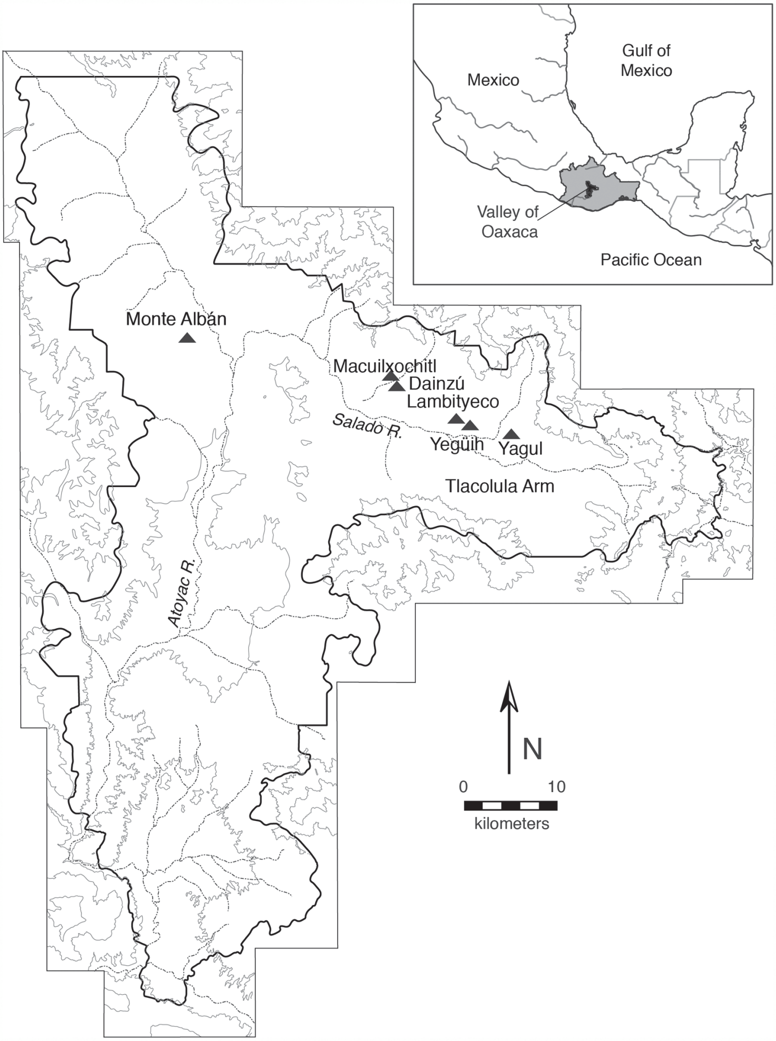
Gulf of Mexico
Mexico
Valley of Oaxaca
Pacific Ocean
Monte Albán
Macuilxochitl
Dainzú
Lambityeco
Salado R.
Yegüih
Yagul
Tlacolula Arm
Atoyac R.
N
0
10
kilometers

Figure 14.1 Map of the Valley of Oaxaca showing places mentioned in the text (authors).

2016:7–8), the current frame is far more robustly underpinned by interdisciplinary conceptual constructs and associated empirical analyses (e.g., Blanton and Fargher, 2008, 2016; Levi, 1988; Olson, 1965; Ostrom, 1998).

We employ theoretical constructs derived from collective action to aid and amplify the understanding of major changes in political organization and ritual practices at the large, pre-Hispanic settlement of Lambityeco, situated in the eastern or Tlacolula arm of the Valley of Oaxaca, Mexico (Figure 14.1). Lambityeco was a secondary center occupied during the Late Classic period (ca. AD 500–850) that had ties to Monte Albán (Blanton, 1978), the largest and most monumental center in the region. Based on recent excavations at Lambityeco (Feinman et al., 2016) and a reconsideration of earlier research at the site led by John Paddock (Lind, 2017; Lind and Urcid, 2010; Paddock, 1983), we offer new perspectives on Lambityeco's history, its shifting relations with Monte Albán, and the later political reorganization of the Valley of Oaxaca. The latter is associated with an almost total abandonment of the regional capital (Feinman and Nicholas, 2016b) and major valleywide shifts in settlement that marked the Classic-Postclassic transition (ca. AD 900–1,000) (Feinman and Nicholas, 2013:141–156). During this extended episode of change, the rulers at Lambityeco first appear to have consolidated their personal power, while at the same time the external political and economic networks that linked the site's inhabitants to wider realms were truncated and ritual activities at the settlement were modified.

Lambityeco: archaeological background

More than five decades ago, John Paddock (Paddock et al., 1968) began an extended archaeological field program at Lambityeco (Figure 14.2). The focus of this early work was the excavation of two elaborate residences (palaces), each of which was rebuilt several times (Lind, 2017; Lind and Urcid, 2010; Paddock et al., 1968). David Peterson (1976), one of Paddock's collaborators, mapped the site, which overall spanned roughly one square kilometer. Peterson found two linearly arranged concentrations of earthen platforms that were located near the eastern and western limits of the settlement. The two excavated palaces (Mounds 190 and 195) were situated at the northern edge of the western cluster of mounds, while an aggregation of smaller pre-Hispanic structures was positioned to the east. The eastern structures (referred to as Yegüih) remain minimally studied; however, Peterson's (1976; Kowalewski et al., 1989) findings indicate that Yegüih was occupied long before Lambityeco and that these smaller platforms declined in use when the more monumental Lambityeco structures (on the site's western side) were built.

Paddock's findings, which post-dated by several decades the major program of excavations at hilltop Monte Albán (Bernal, 1965; Caso and Bernal, 1952; Caso et al., 1967), led him to outline a number of important contrasts between the architecture and artifacts at these two large Valley of

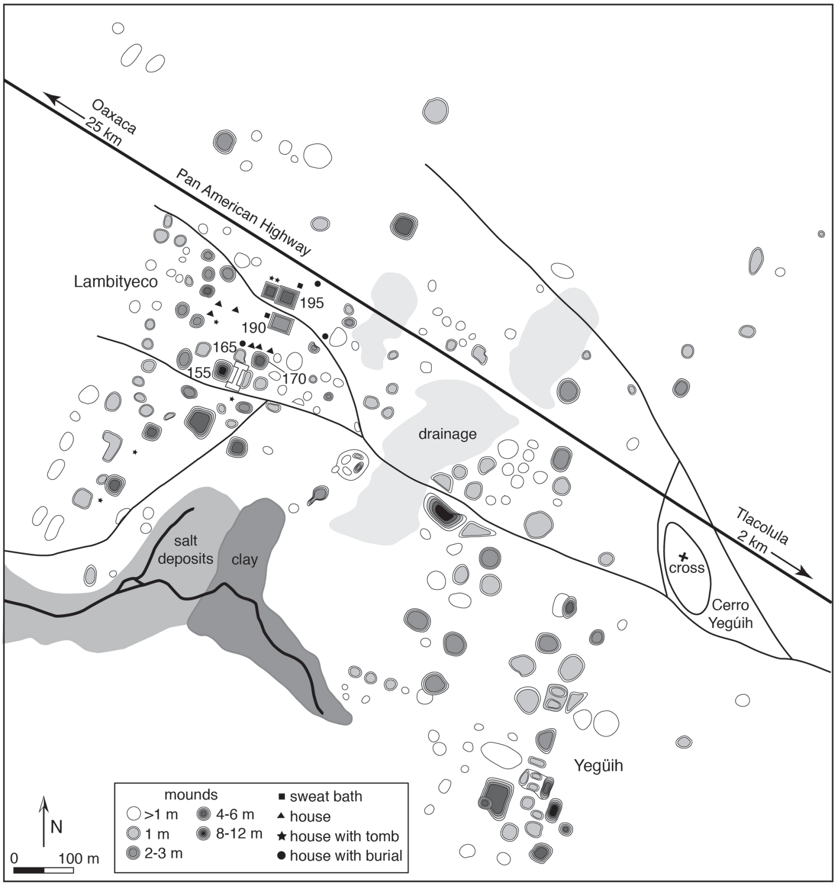
Oaxaca
25 km
Pan American Highway
Lambityeco
195
190
165
155
170
drainage
salt
deposits
clay
Tlacolula
2 km
cross
Cerro
Yegúih
Yegüih
N
0
100 m
mounds
○ >1 m
1 m
2-3 m
4-6 m
8-12 m
■ sweat bath
▲ house
★ house with tomb
● house with burial

Figure 14.2 Map of Lambityeco and Yegüih (authors).

Oaxaca settlements (Paddock, 1983). Paddock interpreted the differences to reflect mainly chronology, arguing that the area and materials that he excavated at Lambityeco were mostly later than Late Classic period occupation at Monte Albán (ibid), when that hilltop settlement reached its greatest extent. Subsequent chronological analysis of dated materials from Lambityeco, published by Paddock's collaborators (Lind, 1994; Lind and Urcid, 2010), did not confirm these views and have been interpreted to indicate that later occupational episodes at Monte Albán were basically contemporaneous (during the Late Classic period) with the two Lambityeco palaces.

Based on his research at Lambityeco, Paddock (1983) was able to establish important differences between that site and Monte Albán. The latter was built on the top of a hill, was occupied as a major center for a much longer duration (c. 500 BC to AD 850), and was far more massive architecturally (e.g., Blanton, 1978). Lambityeco was built on flat alluvial terrain and, even including both sets of platforms, was less than one-fifth the size of the hilltop center. Paddock (1983:203) noted that the elaborate residences at Lambityeco had two patios in their later building surfaces, a pattern in contrast with the single patios found for elaborate residences at Monte Albán (e.g., Flannery, 1983). Yet the two earliest (of six) construction surfaces of the most elaborate palace at Lambityeco (Mound 195) had only a single patio (Paddock, 1983; Lind and Urcid, 2010:137, 319).

Another difference between the sites is that later tombs in the more elaborate palace (M195) were associated with frescos that identified marital pairs who likely inhabited the palaces and ultimately the tombs (Lind and Urcid, 2010:153–162). No such naming of tomb occupants was present at Monte Albán. The friezes represent the process of succession at Lambityeco (Lind and Urcid, 2010:157–162). Functionally, they parallel genealogical registers that have been recorded at more than a dozen Valley of Oaxaca sites (Marcus, 1992:283–285, 2006, 2009; Masson and Orr, 1998; Urcid, 1992, 2003; Urcid et al., 1994). Only two such carved stone registers that pertain to very late in Monte Albán's occupational history have been recovered at the primary center (Marcus, 2009:99–101; Urcid et al., 1994).

Two plastered friezes of Cocijo (a Valley of Oaxaca supernatural representation prominent at Monte Albán) were incorporated into the façade of a room that abutted the central patio of Mound 190 (Lind, 2017; Lind and Urcid, 1983). Lind and Urcid, Paddock's collaborators, have proposed that priests, possibly linked to the ruling family that lived in the Mound 195 palace (Lind, 2017; Lind and Urcid, 1983, 1990), occupied this residence that was built after the initial construction of Mound 195. Curiously, the large busts of Cocijo were erected early in the history of Mound 190 and then were covered over and not replaced during three later occupational episodes (Lind, 2017:37, 58; Lind and Urcid, 1983:89). In addition to the differences in palace architecture and the use of plaster friezes (rare at Monte Albán), Paddock (1983) also noted that a number of ceramic forms, including full-body figurines, especially warrior representations (Scott, 1993), imitation fine orange pottery (Martínez et al., 2000:218–220), and spiked censers (Paddock et al., 1968), seemingly were much more abundant at Lambityeco than at Monte Albán (e.g., Blanton, 1978; Caso et al., 1967). And yet, many aspects of material culture are highly similar between the two sites.

Our Field Museum team (Feinman et al., 2016) endeavored to probe the relationship between Lambityeco and Monte Albán. Did interactions between these two centers shift over time? Why were the two Cocijo busts in Mound 190 covered over and not replaced, and is that a clue for understanding intersite relations? What accounts for the differences between the two sites despite their relative proximity and many artifactual and architectural parallels?

New perspectives on Lambityeco's civic-ceremonial core

Over four excavation seasons (2013–2016), we investigated the monumental core of Lambityeco south of the palaces studied by Paddock. To date, we horizontally exposed a contiguous area, greater than 1,200 square meters, to document the shifting uses of civic-ceremonial space. The investigated area includes a large ballcourt that had not been identified during the survey of the site, a modest residential structure with a large exterior platform on two sides (Mound 165), a plaza area (Plaza 165/170) that served as the original egress to the ballcourt, and the western façade of a larger platform (Mound 170) that abutted the east side of the excavated plaza (Figure 14.3; see Feinman and Nicholas, 2016c; Feinman et al., 2016 for more detail).

As with the Lambityeco palaces (Lind, 2017; Lind and Urcid, 2010; Paddock et al., 1968), all of these buildings and spaces were remodeled at least several times during their use (Feinman et al., 2016). However, the most significant remodeling occurred roughly midway during the history of occupation (during the latter part of Late Classic period) when major changes occurred in the use and configuration of civic-ceremonial space (Figure 14.4). We refer to this significant remodeling episode as the transition between Surfaces 4 (earlier) and 3 (later).

The Lambityeco ballcourt, when built, matched closely the plan of the main ballcourt at Monte Albán (Marquina, 1964:320). Both the Monte Albán and Lambityeco courts had a basic north–south orientation, with a stairway at the center of the north wall, and they were almost equivalent in size. Since the Monte Albán main ballcourt (Marcus and Flannery, 1996:190) was constructed earlier than the Lambityeco court, it may have served as a model for the latter (see Figure 14.3).

Based on the integration of our findings with previous studies at the site, we also suspect that the civic-ceremonial core of Late Classic Lambityeco (see Figure 14.2), from north of the palaces excavated by Paddock to at least the ballcourt (and potentially farther south), appears to have been planned and erected as a single building episode. A layer of large river cobbles and stucco was laid down below the lowest level of building construction as a foundation that underlays the site's central civic-ceremonial complex. During recent excavations, we encountered this cobble and stucco strata on several occasions (Feinman et al., 2016). Earlier, during a deep test probe in the archaeological zone west of Mound 195, a thick layer of largely sterile stucco was observed below all construction (Robles and Zárate, 2008), while below the earliest occupation of Mound 195 (Structure 195–6), subterranean Tomb 5, which was built below the structure from its inception, had a plaster floor constructed on a bed of cobblestones (Lind and Urcid, 2010:117). In addition, when Paddock's team excavated a series of test pits in the large open area between his excavations and ours, they frequently encountered a stucco surface without other domestic features (Lind and Urcid, 2010:75). In contrast, a very deep modern well dug just west

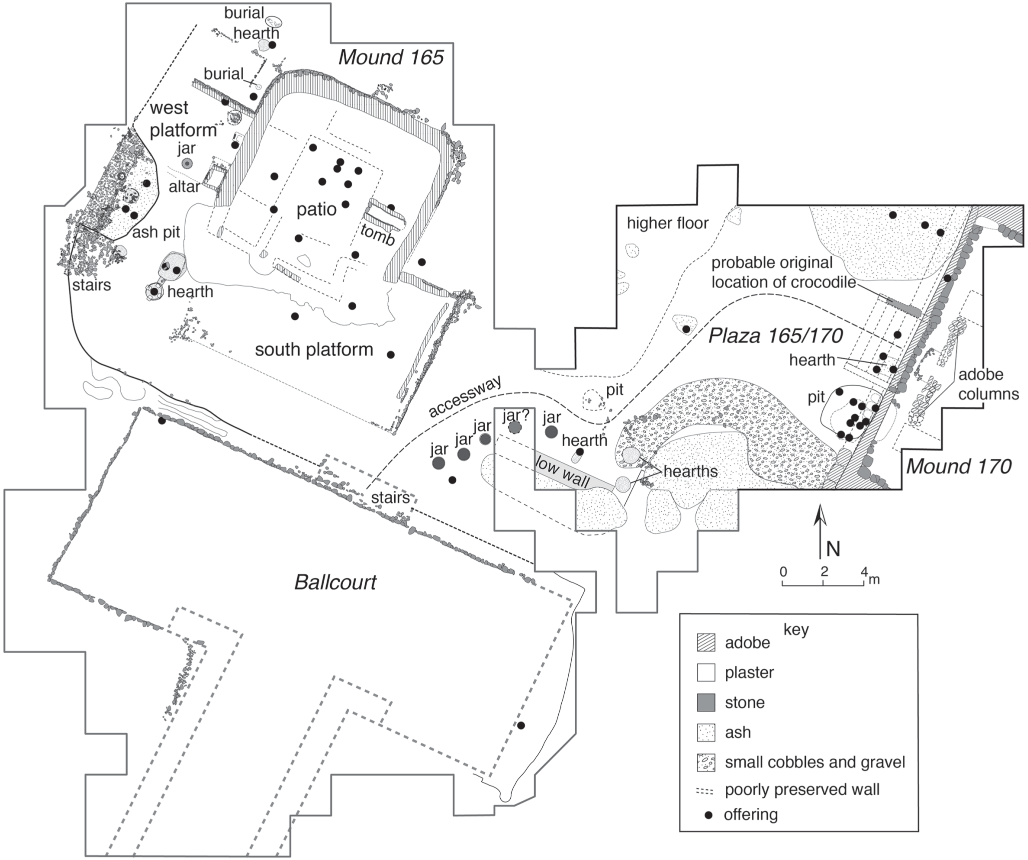
burial
hearth
Mound 165
burial
west platform
jar
altar
patio
tomb
ash pit
stairs
hearth
south platform
higher floor
probable original location of crocodile
Plaza 165/170
hearth
pit
adobe columns
pit
accessway
jar
jar
jar
jar?
jar
hearth
low wall
hearths
Mound 170
stairs
N
0
2
4
m
Ballcourt
key
adobe
plaster
stone
ash
small cobbles and gravel
poorly preserved wall
offering

Figure 14.3 Original Lambityeco ballcourt and associated architecture in surface 4 (ca. AD 600–700) (authors).

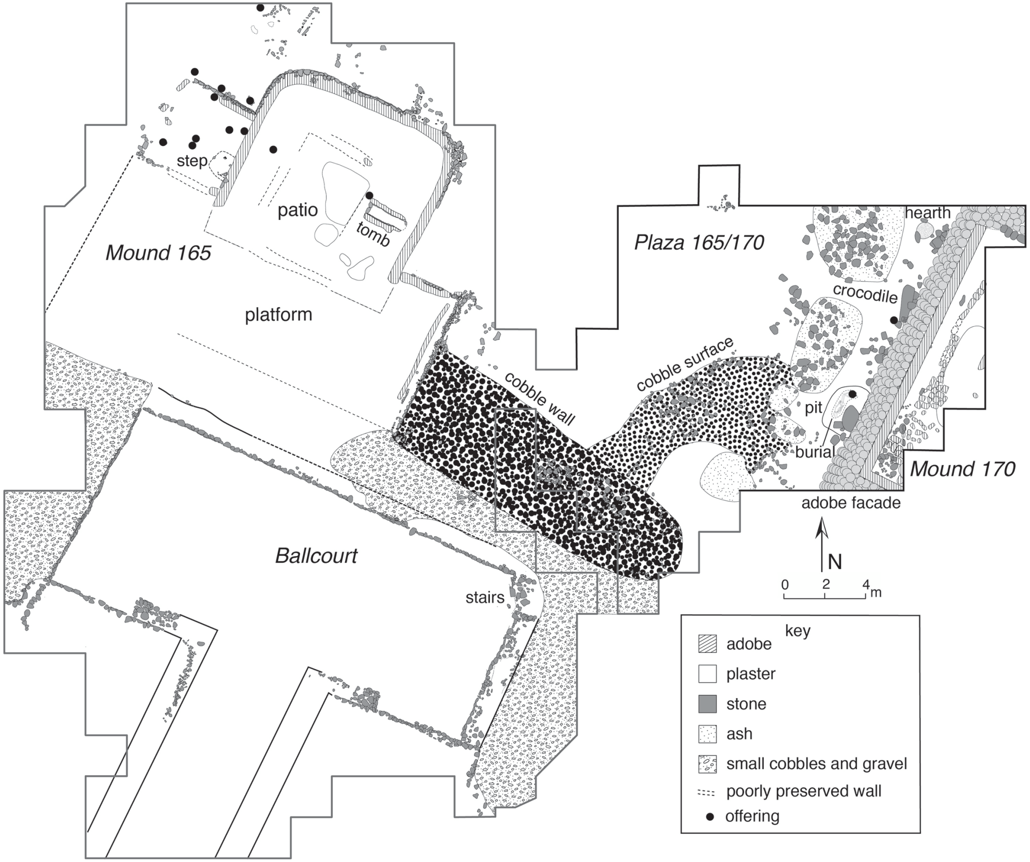
Mound 165
step
patio
tomb
platform
cobble wall
Plaza 165/170
cobble surface
hearth
crocodile
pit
burial
Mound 170
adobe facade
Ballcourt
stairs
N
0
2
4
m
key
▨ adobe
☐ plaster
■ stone
ash
small cobbles and gravel
poorly preserved wall
● offering

Figure 14.4 Remodeled Lambityeco ballcourt and associated architecture in surface 3 (ca. AD 750–800) (authors).

of the site revealed no such layer of stucco and cobbles in its profile. Thus, this cobble and stucco stratum was neither natural nor placed below just a single structure. Rather, when the civic-ceremonial core of Lambityeco was laid out early (ca. AD 500–600) in the Late Classic period (Lind and Urcid, 2010:114–115), a layer of stucco on a thick bed of river cobbles was placed as a foundation, following natural contours, for both structures and plazas.

The layout of Lambityeco's core differed from the earlier site plan at Yegüih (Kowalewski et al., 1989; Robles et al., 2011). The platforms at Lambityeco were much larger than those at Yegüih (see Figure 14.2). Building alignments at Lambityeco were uniformly oriented to 16 degrees 30 minutes east of magnetic north, the point of sunrise during the winter solstice and the point of sunset during the summer solstice (Lind and Urcid, 2010:105–106; Peterson, 1991; Šprajc and Sánchez, 2015).

The ritual significance of these cosmic alignments is further signaled by a processional path that we defined between the ballcourt and Mound 170 (Feinman et al., 2016). As already noted, a major shift in the use of space occurred at Lambityeco, between Surfaces 4 and 3 (see Figures 14.3 and 14.4). When that shift occurred, the original north stairs of the ballcourt were destroyed, a new northeast corner entrance was built for the court, shortening its eastern side, and river gravel was piled outside the court to block egress from the ballcourt to Plaza 165/170 (Feinman and Nicholas, 2016c). When we excavated through the gravel, we found that it covered a set of large jars that dated to the earlier Surface 4 (see Figure 14.3). One of the jars contained a carbonized cacao seed, while parts of other seeds were found in other jars. The jars were adjacent to a raised earthen path that passed into the plaza. The path ran right to the west side of Mound 170, where the original stairway on the side of the platform led up to the entrance to a small building on top of the platform that had a columned entrance, similar in plan to a temple (Templo Amarillo) constructed at the site of Dainzú (Bernal and Oliveros, 1988:9, foto 3; Martínez López, 2002:fig. 21). During the Lambityeco transition between Surfaces 4 and 3, the path in Plaza 165/170 was blocked, the stairs on the west side of Mound 170 were dismantled and built over, and the entrance to the building at the apex of Mound 170 was closed (see Figure 14.4; Feinman and Nicholas, 2016c). A carved stone crocodile (Feinman and Nicholas, 2016c, 2016d), which we suspect was positioned originally as a balustrade of the stairway between the plaza and on the temple Mound 170, was flipped and moved in front of the later Surface 3 Mound 170 façade (Figure 14.5).

Overall, the area that we excavated was associated with both features and artifacts indicative of large-scale food preparation, ritual feasting, music making, incense burning, and ritual violence/sacrifice (Feinman et al., 2016). In pre-Hispanic Mesoamerica, music, feasting, and sacrifice were common accompaniments of the ballgame and ballcourt rituals (Fox, 1996). Processions, often including well-attired personages, also figure prominently in rituals and imagery associated with ballcourts and other ceremonial events

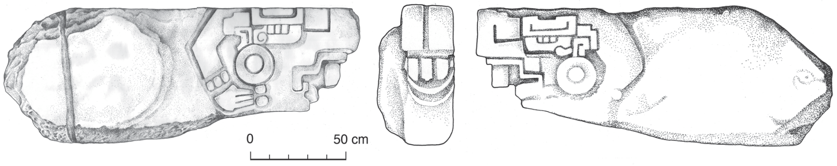

Figure 14.5 Carved crocodile stone from Mound 170 at Lambityeco (authors).

in Classic period Oaxaca (e.g., González Licón, 2015). We suspect that processional gatherings at Lambityeco during its early history may have periodically followed a route that passed from the ballcourt to the temple atop Mound 170. This route would have recreated symbolically the path from the underworld (ballcourts were believed to be an underworld portal) to the earth (where food was ritually distributed from the large jars) and then up to the heavens (e.g., Reese-Taylor, 2002:159). In the neighboring Maya region (Morton, 2007), such base-to-summit processions generally proceeded in a counter-clockwise direction. A Surface 4 route laid out early in Lambityeco's history that passed from the ballcourt to Mound 170 would conform to this convention, with the carved stone crocodile ("earth monster") both resting on the natural world and flanking the entry to the heavens (see Figure 14.3; Freidel et al., 1993:158; Morton, 2007:153).

After the Surface 4 to Surface 3 transition, later in Lambityeco's occupational history, the path from the ballcourt to the western side of Mound 170 was blocked (see Figure 14.4) and became unsuitable for a procession. A line of large cobbles was placed across Plaza 165/170 in Surface 3, which would have prevented large collective use of the space. The plaza in surface 3 was almost devoid of artifacts, a sharp contrast from the earlier surfaces. The only break in the line of cobbles was right in front of the crocodile stone, now upside down and perched against the façade of Mound 170. Nevertheless, the stone still held power as heavy deposits of charcoal, along with broken censers for incense (*sahumadors*), and several human cranial fragments were situated directly in front of the stone. Although ritual activities were still practiced in the plaza, those rituals must have been limited to fewer participants and thus were more exclusive.

Change during Lambityeco's Late Classic occupation

We asked why was Lambityeco in some ways so similar to Monte Albán and different in others? We suspect that the answer lies in the significant changes that occurred at the site during its occupational history. When the platforms and plazas at Lambityeco were laid out (and for a series of generations thereafter), the rulers at Lambityeco appear to have been closely tied to Monte Albán, the region's largest center. Astronomical knowledge, skilled masonry technology, and a range of stone resources were incorporated into a highly planned and symmetrically aligned layout. The ballcourt included cut limestone blocks, while Mound 170 incorporated yellow stone from the Dainzú-Macuilxochitl area as well as ignimbrite, which is not locally available near Lambityeco. At the beginning of the Late Classic period, the most monumental construction was undertaken at Monte Albán (Blanton, 1978), also in a highly symmetrical, broad-scale plan (Robertson, 1983). Also around that time, the authorities at Monte Albán further extended their influence and heightened interconnectivity farther east from Dainzú-Macuilxochitl in the Tlacolula arm (Feinman and Nicholas, 2005; Marcus, 1983), and a monumental civic-ceremonial complex was constructed at Lambityeco.

Early in its history, Lambityeco shared many features with Monte Albán. The ballcourt at Lambityeco was almost equivalent in plan to the main court at Monte Albán. As at Monte Albán, the Mound 195 palace only had a single patio, which implies that these buildings were elaborate residences and likely did not also serve as seats of governance (Barber and Joyce, 2006; Feinman and Nicholas, 2013, 2016b). The patio of the Mound 190 elaborate residence was adorned with two Cocijo friezes, a supernatural representation prevalent at Classic period Monte Albán (Caso and Bernal, 1952:17; Marcus, 2008). Just as Monte Albán's main plaza could have served as an occasional site for large-scale collective rituals, the processional path that we defined and the numerous large plazas at Lambityeco could have accommodated much of that site's population. At that time, the ceramic complexes at the two sites were highly similar.

But the correspondences between the two sites shifted during Lambityeco's occupation. Lambityeco's elaborate residences were expanded to add a second patio, and very late in the site's history, a large exterior plaza was built adjacent to the Mound 195 palace (Lind and Urcid, 2010). When the second patio was added, the rulers of Lambityeco were portrayed in friezes above their tombs (a practice not evidenced at Monte Albán). The palace was becoming the center of Lambityeco's governance, and its rulers were legitimized through genealogical descent. The Cocijo friezes in Mound 190 were buried and not replaced (Lind, 2017).

During the Surface 4 to Surface 3 transition, noted in our excavations, the ballcourt was modified to look less like the one at Monte Albán. Collective ritual was blocked and replaced by what appears to be more exclusive ritual practices. Following this transition, we found that figurine abundances shifted at Lambityeco. Figurine varieties shared with Monte Albán became less common, and the warrior figurines (Scott, 1993) that are rare at Monte Albán became more prevalent. Likewise, imitation fine orange pottery, rare at Monte Albán, became a more abundant fine ware at Lambityeco.

As architectural and artifactual distinctions between the two sites were expressed over time, access to building materials not available in the immediate catchment of the site ceased. The construction modifications implemented during Surface 3 to the buildings that we studied utilized some recycled stones, but like the crocodile, these clearly were out of position. Recycled building materials were incorporated with local mud brick (adobe), gravel, and river cobbles in the rougher, less symmetrical buildings of later Surface 3. The riverine materials were all available from the Salado River, which transects Lambityeco. We see these changes as in part reflecting a Late Classic period separation of Lambityeco's elite from those at Monte Albán. Soon thereafter, Lambityeco was largely abandoned (ca. AD 800–850); perhaps some of the population resettled at Yagul (Paddock, 1966:212), a site that expanded at the end of the Classic period. Yagul is located farther east than Lambityeco and is situated in a much more defendable location. Within a century or two, Monte Albán lost most of its population, and the political economy of the Valley of Oaxaca shifted markedly (Feinman, 1997; Feinman and Nicholas, 2013, 2016b).

Conceptual implications

The shifts that occurred at Lambityeco during its Late Classic occupation reflect to a large degree the processes associated with the decline of Monte Albán, after more than a millennium of regional hegemony. Certainly, at Lambityeco, the declines evidenced in the loss of precision in architectural alignment and symmetry, less skilled construction technique, and an absence of building materials procured from afar reflect this growing estrangement. Lambityeco's ties to knowledge and resources previously accessed from powerful neighbors, in particular Monte Albán, appear to have been weakened, if not ruptured, a process that was most apparent at the edges of the Valley of Oaxaca (Feinman and Nicholas, 2013).

But the shifts evident at Late Classic period Lambityeco should not be considered simply as evidence of political decline or decadence (e.g., Potter, 1980). At Lambityeco, rule and power became increasingly centralized as the occupants of Mound 195 explicitly legitimized their position through linear descent (Lind, 2002), while the palace plan (and seemingly its associated functions) were greatly expanded (Lind and Urcid, 2010:297–315). Furthermore, palatial tombs at Lambityeco generally contained large quantities of grave offerings both within and immediately outside these burial features (Lind, 2002; Lind and Urcid, 2010; Paddock et al., 1968). The offerings associated with these Lambityeco mortuary features are generally as abundant as Classic-period tomb accompaniments at Monte Albán, despite the much larger size and monumentality of the latter settlement.

Thus, the political changes at Lambityeco signal both a distancing from Monte Albán and a shift in the nature of Valley of Oaxaca political organization from the more collective governance that was long practiced at Monte Albán to a less collective pattern focused on the royal palace. Rulership later in the history of Lambityeco was centered in a royal family, who derived legitimation through linear descent and were able to amass considerable resources (as evidenced by tomb offerings). Throughout Monte

Albán's long history, only a handful of principals were named, and the two genealogical registers at the capital were both erected late. The changes in ritual practices (Feinman, 2016), which we described (from participatory to exclusive) based on the shifting uses of space between Surfaces 4 and 3, conform to this transition in rule/governance.

Here, we have outlined for Lambityeco a spatially focused vantage on the beginning of a long process of change in the pre-Hispanic Valley of Oaxaca. In this pre-Hispanic Zapotec world, as the relatively collective formations of governance long established at Monte Albán broke down, smaller but less collectively organized polities (focused on ruling dynastic families) emerged. The legitimation of rule, the degree to which power was concentrated, and how rituals were practiced all changed significantly without evidence for massive population relocations or unusual degrees of extra-regional interaction or influence. Monte Albán's slow decline and the coincident political shifts at its peripheries (including at late Lambityeco) kicked off a centuries-long process (cycles) of regional and ultimately extra-regional reorganization (Feinman and Nicholas, 2013; Oudijk, 2008). Over these centuries that span the end of the Classic period to the eve of Spanish Conquest, the political economy and the nature of rule/governance in the Valley of Oaxaca were transformed (Feinman and Nicholas, 2016b).

Although this historical analysis is focused on a key highland region of pre-Hispanic Mexico, the implications extend beyond that geographic lens and even ancient Mesoamerica. The temporal shifts outlined illustrate how political relations may change rather markedly over generations, albeit in interpretable ways, even in defined physiographic contexts with clear indications of relative cultural and demographic continuity (Feinman and Nicholas, 2016b). The specific path of history in this focal region neither followed a universal or easily generalizable pattern of change, nor did it proceed in accord with basic notions of progress, with political units of ever increasing scale. Rather, the complex path of political change recounted here is more reflective of the complexity and diversity of historical paths that Carole Crumley (e.g., 1987, 1995) alerted us to decades ago.

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15 Sacred wells across the *Longue Durée*

Celeste Ray

Only 2.5% of the earth's water is fresh and almost 70% of that is locked in glaciers and ice caps. In societies where reliance on indoor plumbing is now multiple generations deep, water's actual scarcity makes little impression, but reverence for freshwater is likely as old as humanity. Clive Finlayson even argues that the spread of Homo sapiens around the globe was driven by the search for freshwater springs (2014). Contested and protected, water sources were likely the earliest sacred sites. Historical and ethnographic accounts demonstrate that from Madagascar to Indonesia to Siberia, sacred and healing springs are closely associated with ancestors and identity (Radimilahy, 1994:83–86; Jennaway, 2008; Breyfogle, 2017). Holy wells and sacred springs are a global phenomenon and as they can endure through changing populations, elites and religions, their biographies can encapsulate local and regional societal trends across the *longue durée* (Sinclair, Moen and Crumley, 2018).

A holy well may be defined as any natural source of freshwater that is a focus for ritual practice and engagement with the supernatural, which may possess a cure for particular ailments and receive votive offerings, and which, in northwest Europe, is frequently dedicated to a saint. The "well" of "holy well" is not a human-excavated hole or shaft for water collection; holy "*wells*" are natural features and are most commonly springs, but can also be ponds, lakes and even pools fed by seepage. Irish medieval literature and later folklore describe different types of sacred wells: wells that are springs, wells that are springs which become rivers, and "lough-wells" which are spring-fed lakes. Even natural rock crevices or cavities in trees left by broken branches, where dew and rain collect can be holy wells and recipients of votives. Employed in multiple eras for grinding grain or metal ores, rock outcrops or portable stones with round, human-made hollows are called bullauns and, as they readily retain water, can also be considered holy wells. Holy wells can be embellished with superstructures and stone impoundments or they can simply be unadorned depressions in the ground.

They might perch within landscaped gardens, be trod under cows' hooves, or sit alongside now-busy roads. Visiting an Irish holy well involves "paying the rounds": circumambulating a well clockwise (sunwise), reciting set

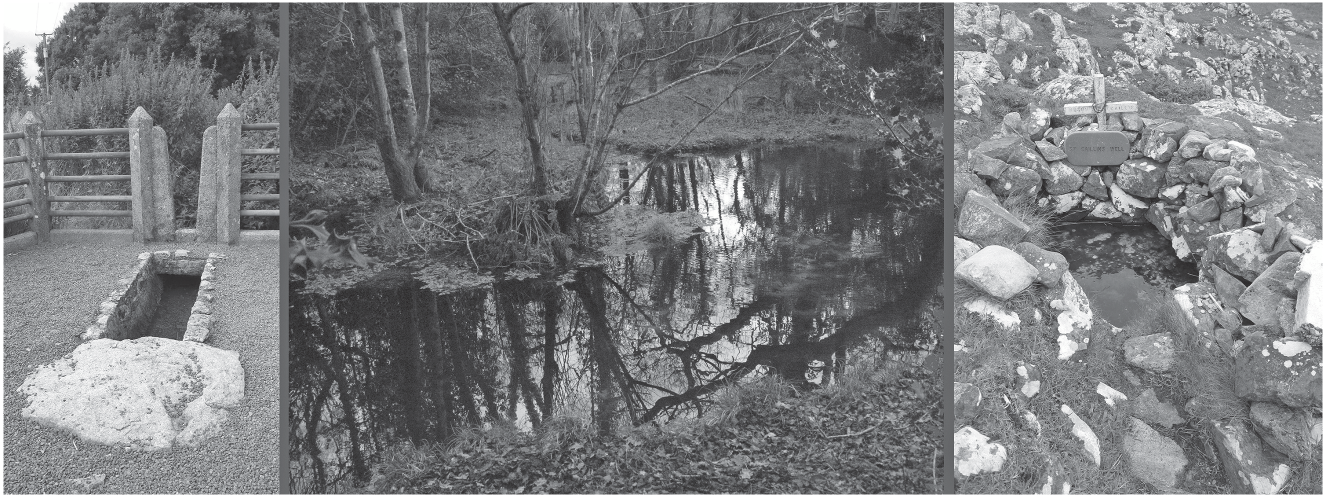

Figure 15.1 (L): St Patrick’s well, in the townland of Patrickswell, Co. Carlow; St Berrihert’s well, Ardane, Tipperary; (R): St Caillín’s well, Ballina Leama, Co. Galway (author).

numbers of prescribed prayers, and depending on the devotee's intentions, proffering some type of votive. A well's landscape context might be punctuated with other thaumaturgical features known as "stations" where prayers are also offered and which may include a sacred tree, an unusually shaped boulder, a Bronze Age orthostat, or a medieval church ruin, for example. Doing the rounds is called in Irish *an turas* (the pilgrimage) so that even those undertaking folk liturgies at their local holy well refer to their actions as pilgrimage.[1] Wells may be visited at any time, but communities annually gather wellside on the associated saint's feast day called the pattern day.

Thousands of holy wells exist across Protestant, Orthodox, and Roman Catholic Europe from Iceland to Russia. Their study has been primarily the interest of folklorists and relatively little archaeological research has focused on holy wells. Largely based on the nineteenth-century work of the Ordnance Survey, Ireland's National Monuments Service documents the location of almost 3,000 holy wells. The Northern Ireland Sites and Monuments Record yields 187 holy wells (about 1.24% of the 15,000 sites in the NISMR) and nearly one third of these well sites lack a recorded name or associated saint. Many of these have been lost in recent decades to new farming techniques, afforestation, road widening, and residential and commercial construction. Despite threats to these sites, they have yet to be systematically studied by archaeologists and less than 1% of the Republic's holy wells have been excavated to any extent (Ray, 2014:4–5). Archaeological data collected on wells has usually been in advance of development, or during community renovations, not because the wells themselves were considered a subject for archaeological research. As such, wells can present unique challenges for study since hundreds remain very much in use as sacred sites. This essay describes how the ritual use of holy wells can make them archaeologically-resistant sites, but also considers how holy well sites can illuminate Irish regional dynamics and the interconnectedness of what appear to be discrete sacred landscapes.

Spring sacrality

The paradigm of sacred water is panhuman and the sacrality of springs particularly has been reimagined and re-placed cross-culturally and transtemporally. Springs can of course run dry or relocate, but those identified as sacred around the world are usually touted for their recognized longevity. How springs are selected as special—as the dwelling places of the supernatural (divinities or ancestors) and as a source of cures and good health—may relate to their landscape contexts. Particularly scenic or somehow-unusual locations of springs might attract special consideration (their presence near a curiously shaped rock, on a mountaintop, as a pooling where multiple springs flow together, or as a freshwater spring available only at low tide on a saltwater shore). Over the generations, some springs became associated with particular cures because their waters are rich in lithium, iron, potassium, magnesium, or sulfur, for example, or because their settings contained an abundance of curative flora. Of the genus *Salix*, willow trees are often called sallies in Ireland, grow in damp soils, and are known for the pain-relieving properties of their bark (giving us aspirin) and holy wells with associated sallies are known as "headache wells." Holy wells beside ash trees were still known in the late twentieth century, though more rarely today, as helpful for arthritis and rheumatism (ash leaves were employed in traditional remedies for inflammation). Springs surrounded by speedwell germander (*Veronica chamaedrys)* were associated with curative properties for sore eyes and that plant was once used in eye ointments. Holy wells associated with folk osteopathy were abundant in comfrey or "knitbone" (of the genus *Symphytum*) used by bonesetters in the bandages with which they treated broken bones.[2] In addition to being known by a saint dedication today, multiple wells across Ireland are called "Slán" (health or wholeness), as was a well stewarded by the Irish god of healing Dian Cécht in the Iron Age Sagas (Stokes, 1892:71–72) and one converted by St Patrick that, according to Patrick's seventh-century hagiographers, was worshipped as a god.[3] "Crossing the divide" between the Iron Age and Early Christian eras, the paradigm of curative and sacred water sources more basically seems to be part of the human experience worldwide in different eras.

European water bodies have been receiving offerings since perhaps the Paleolithic (Bliujienė, 2010:137). While the use of wetlands and bogs for ritual sacrifices is better substantiated for the Neolithic, evidence does readily emerge from the Mesolithic in northwestern Europe and Ireland (Bogucki, 2013:817; Bradley, 2000:82; Fredengren, 2002). Neolithic Stonehenge may have Mesolithic origins in a sacred spring at Blick Mead that received thousands of deposits including blades, microliths, burins and axes—the pristine condition of which suggests they were votives. Nearby "Blue Stonehenge" is adjacent to a spring that also contains Mesolithic flint work. These springs might be precipitants of what became an over 2,000-acre ritual landscape, with more than 400 surviving ancient monuments (Jacques, Phillips and Lyons, 2012, 2018). In Ireland, watery site deposition of Neolithic human remains, pottery, and stone axes may be associated with ancestor veneration (Cooney, 2000:189, 130) and into the Early Bronze Age, sacred watery sites were modified when associated with hengiform monuments (Condit and Simpson, 1998:59–60); further research may indicate if henges occur near depositional springs in a patterned way. Springs were a focus of ritual deposition through the Bronze Age across Europe from Slovakia to Denmark and the islands (Darvill, 2013:155), and on Sardinia, over 50 springs had Bronze-Age enhancements, such as pavements, benches or other structures (Harding, 2000:315).

Into the late 1990s, academics largely fixed holy wells as Iron Age phenomena, and in contemporary Irish, Scottish, Welsh and some English folklore, holy wells and some of their associated practices, are popularly considered a

"Celtic inheritance." Twentieth-century scholars could confidently state that inscriptions, place-names, reliefs, and comparison with Gallic deities and Irish mythology provided evidence for insular "Celtic water cults" (Alcock, 1966:2) or that "the cult of wells, pools and lakes" is evident in the "three main sources of evidence for native religion," those being classical sources, the archaeological record, and literature (Ross, 1996 [1967]:48). While a focus on "things-Celtic" could ignore panhuman precedents for sacred water paradigms, post-Celticism spurred other scholars to question or emphatically deny the possibility that Iron Age Europeans venerated springs before the Romans exported their own practices to the colonized (Webster, 1997; Carroll, 1999:71–72; Döring, 2003; Kelly, 2002; Mallery, 2011). Actually, Eberhard Sauer (2011) and Berta Stjernquist (1997) have demonstrated the Iron Age habit of depositing votives beside springs in unconquered Germany and Scandinavia. Nico Roymans and Ton Derks (2009; also Derks, 1998, Roymans, 1990), Elizabeth Jerem (2007) and Phil Andrews (2007) have also been uncovering evidence for pre-Roman sacrality at sites previously thought to have been first en-shrined by the Romans in France, Hungary and England. Given the wide acceptance of water veneration and votive deposition for Bronze Age Europe (and of course the fact that sacred watery sites have received offerings around the world cross-temporally), a lack of water veneration and votive deposition in the Iron Age would actually be an intriguing anomaly. A "grand narrative" of the Celts (Collis, 2003:35) has been productively reconsidered through a focus on local and regional variations in Iron Age evidence; however, examining the local, the regional, and the grand narrative can hardly be mutually exclusive: interpretation at any scale requires checks with others (Crumley, 2007; Schumann and van der Vaart-Verschoof, 2017; Webley, 2015).

What we identify as sacred springs and holy wells today, include a variety of different site types that may have been discrete to their users. Distinctions between watery sites are sometimes evident in the types of deposits they received. In Ireland, Britain and Scandinavia, different types of offerings were gifted beside springs than were placed in bogs, rivers and lakes during the same periods (Needham, 1988; Bradley, 2013:136; O'Sullivan, 2007:182–183; Stjernquist, 1997:92). With regard to northern Europe, Richard Bradley noted that votive practices could in some cases extend "without a break from the Neolithic period. Pre-eminent among these was the deposition of valuables in watery locations—rivers, springs, lakes and bogs" (1990:183). He later asserted that social memory of ritual actions at such locations could drive long-term practice since depositions continued at sacred sites even as the places themselves transformed from water to peat bog (2000:155–158; see also 2017). Considering Sámi ritual offerings from the Iron Age to the seventeenth-century and beyond, Anna-Kaisa Salmi, et al. have recently argued that local practice variations mediated the arrival of state-level powers and Christianity, but that archaeological finds signal long-term continuity and creativity into the twentieth century

(2018). After decades of scholarly fascination with "invention of tradition" and deconstruction, invention and discontinuity are now the expectation, but the archaeological record can demonstrate continuities and periodicity. Because some sites yield evidence for transgenerational continuity of use, or sporadic use over the ages, does not mean that holy wells categorically have prehistories. Some sites attracted veneration (and perhaps similar types of deposition) across the *longue durée*, while others could have had period-specific or population-specific sacrality. Reuse of sites in different eras for seemingly ritual purposes (votive deposition) can occur after long time gaps and presumed breaks in cultural knowledge about a place. Successive deposition does not necessarily imply continuity of deposition-rites or static perceptions of a numen. Rather, across different "ages" (as we perceive them) people venerated and perhaps attributed genii loci to some of the same water sources. Sacred water paradigms were repeated in new places as populations, faiths, elites and technologies expanded. Our narratives of sacred watery site types, in the multiple, are as yet poorly differentiated, yet sacred springs and wells can offer situations for tracking the articulation of micro and macro structural changes diachronically. Retrieving sequential biographical information from these sites is however challenging *because of* their use across time.

Sacred springs and holy wells as archaeologically-resistant sites

Archaeological evidence affirms pre-Christian votive deposition at wells and other watery sites in Ireland, in Scandinavia and on the continent, yet spring-wells can experience such high traffic across different eras that surviving votive deposits may be few and can be poor gauges of actual use (Ray, 2014). Manipulation of sites across the generations and the very practices associated with their ritual function can destroy the archaeological record at sacred springs. On the continent, the relatively small artifactual collections for *pre*-Roman spring veneration in Roman-conquered areas relates to Roman engineering of co-opted sites through the construction of bath and temple impoundments, the canalizing of water, the removal of any indigenous structures and votives, and perhaps replacement of formerly-encouraged plant species to transform the site in accordance with Roman perceptions of sacred space. Aware of indigenous deposits in watery places, Romans even auctioned off lakes in conquered territories to those betting on profit by retrieval (Strabo, IV, I, 13; Tierney, 1960:262). The ways in which Romans made indigenous sacred sites their own significantly impacted the archaeological record from the Iron Age and earlier.

The nature of spring sites (with variable flow rates) obviously affects what "votives" might remain in association with a site. Whether a given population placed offerings *in* sacred waters, or tabooed direct deposit and buried or placed gifts nearby, on the ground, on an associated platform, or on a sacred tree, also shapes an individual site's record (Ray, 2014:44–45; Sauer, 2011:529; Stjernquist, 1997:92). Even the organic quality of many votive gifts also means that indigenous cults could leave few traces. Across the first millennium AD, continental homilies, church council edicts, and even legal fines that tried to eradicate springside oath-taking and votive-gifting tell us that people tossed bread, cakes, wood, human hair, clothes, cheese, beeswax and even butter directly into the water. Such spring offerings were also documented in Scandinavia and Britain and Ireland into the nineteenth century (Dowden, 2002:51; Stjernquist, 1997:85). Butter was a documented well votive in Ireland as late as 1950 (Kelly, 2012). Such ritual practices leave little if any trace in water sources (as opposed to deposits in bogs); and those recording butter deposits also report that the impoverished retrieved such offerings for their own use (as could of course have happened with less-perishable offerings). However, depending on the matrix surrounding a spring, even organic deposits such as human hair and wood can be absorbed and preserved. This was the case, for example, with the medieval deposits at Regisse Spring, on the island of Funen and Helene Spring in Denmark (Johansen, 1997:62), and hundreds of wooden Iron-Age sculptures recovered from spring sources at the River Seine (Deyts, 1971; Coles, 1998:163–189; Armit, 2012).

Historically we know that strips of cloth, clothing, pottery, stones, coins and religious medals were commonly offered votives in the last four centuries across Europe as well as crutches and other emblems of illness that petitioners left with their requests or in thanksgiving for cures. The range has expanded in contemporary Ireland to include prescription bottles, inhalers, teethers and teddy bears, ultrasound images, mass-cards of the deceased, gaming paraphernalia related to sports injuries, shells, flowers, and candles, sox and the occasional shoe, crucifixes, rosaries, saints' statues and even framed images of religious figures, and tokens or bottles of water from other pilgrimage sites in Ireland and abroad.

However, even those wells receiving regular votives, can have variable records of successive acts of deposition over time because of devotees' maintenance of these sacred sites. Some wells still have local family stewards today who have maintained sites for generations (some assert their familial role is centuries-deep). Community members clean vegetation from wells, may brush impoundments and rake or even deepen the bottoms of wells, and remove votive accumulations at least annually in advance of the associated saint's feast day.[4]

An accretive record might not then seem a likely prospect, yet in some of the few excavations of Irish holy wells, layered deposits have been found. A conservation project at St Doulagh's well in Balgriffin, Co. Dublin, recovered thirteenth- and fourteenth-century pottery fragments and a posthumously minted silver penny of Henry VIII (Swan, 1990:18–19). Despite twentieth-century cleanings of three County Meath wells, finds included an undated projectile point, a Gaulish-Samian pot sherd, a pre-Christian

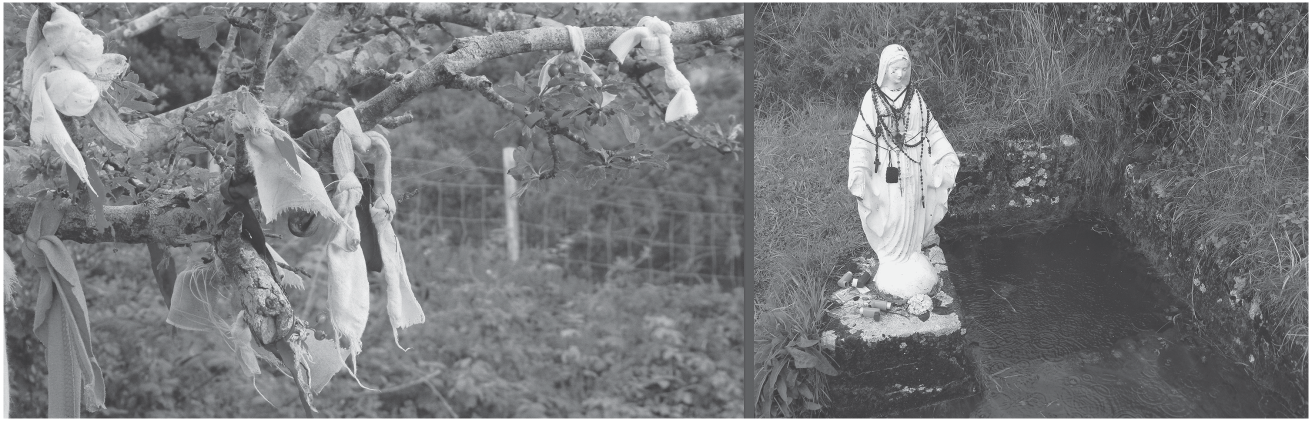

Figure 15.2 Votives: (L): Hawthorn “rag” tree at Our Lady’s well, Corr na Mona, Co. Galway; (R): Asthma inhalers, religious medals, cards, scapulars and rosaries at St Faithleach’s well, Ballyleague, Co. Roscommon (author).

brooch and spiral armlet, a ninth-century ringed pin, a range of pottery from the thirteenth to the twentieth centuries, and coins and beads from the last four centuries (Warner, 1976; Kelly, 2002:26–27).

Holy wells as archaeological sites in Ireland

Considering sacred landscapes, Carole Crumley argued that springs and other "natural" landscape features which "connect the individual with the cosmic frame that gives life meaning" are "artifacts, inasmuch as they are factors in thought and action" (1999:270). Even with multi-period yields at some of the few wells to be excavated to any extent, holy wells are not classed as "monuments" in Ireland, meaning they are excluded from certain protections and from one-third of the archaeological inventories compiled for sixteen of the Republic's 26 counties.[5] Supporting the provisions of the National Monuments Acts 1930 to 2004, the Archaeological Survey of Ireland lists holy wells as "ritual-sites" rather than monuments. However, many sites have "monumentality" (obvious human alteration) under a 1994 amendment to Ireland's National Monuments Act.

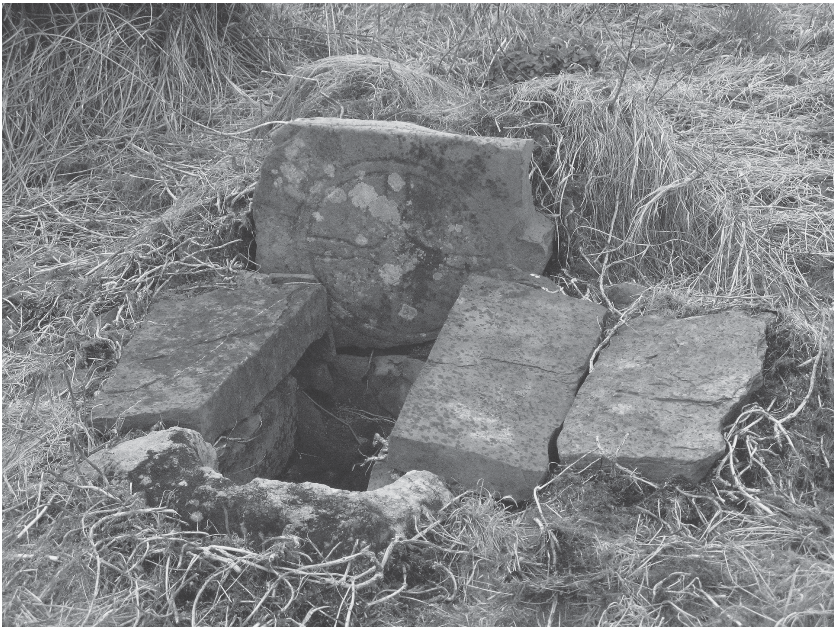

Figure 15.3 Cross-inscribed stone above St Inghean Bhaoith's well, Kilnamona, Co. Clare. Venerated in County Clare and adjoining parts of Limerick and Galway, she was said to be the mother of 56 children who all became saints (Ó Riain, 2011:378) (author).

Holy wells often have impoundments with steps into their waters, may be stone-lined, or have earthen-mound surrounds. Their superstructures can have regionalized and period-linked styles. Lacking the protection accorded to monuments, those of the last few centuries (of archaeological interest themselves) are periodically demolished and older materials can be destroyed in that process. In July of 2016, the Kerry County Council partially demolished a stone arch over "the Well of the King of Sundays" in Tralee (as houses had been built around the site, the arch was deemed a tripping hazard for playing children). At Warrenstown in County Meath in May of 2018, a mid-twentieth-century structure, along with stone surrounds, and even the trees and landscape undulations around a popular St John's well (which attracted about 150 participants to the previous year's pattern day) were all leveled flat by landowners who also eradicated the stream leading from the well and covered the well itself. Two early medieval stone heads, discovered in a 1944 well restoration and incorporated into the superstructure, were planted in the dirt on either side of the covered well.

Just as we need to distinguish variations in sacred watery site types, we need to recognize patterns in the way long-lived springs may have been marked across different eras and distinguish between different types of holy wells (for example, those serving as territorial boundaries, those selected as inauguration sites, and those that gave rise to church foundations). Particular monument types often sit near what are now considered holy wells (for example, burnt mounds and ogham stones[6]) and recorded monuments of various ages (for example, a Neolithic court tomb or a Bronze Age cist mound) might be incorporated within the contemporary ritual orbit of wells as stations of the *turas*. More than votive deposits, stations shaping well folk liturgies might be more significant archaeologically for understanding these sacred landscapes through time. Wells' ritual landscapes are much reduced today, but some still have "long stations" which can be multiple kilometers from the well itself. Stations may include unusually shaped boulders and immovable stones that might be two or even 50 meters from a well and mark the boundaries of rounding activity, or may be satellite features in a wider sacred landscape of two to three hectares and be visited as part of the rounds only when particular cures are needed. These may be referenced as the saint's "bed" or "chair" on which the petitioner may sit or lie for relief from a backache or headache. The natural shape and indentions of other stones might be traditionally explained as depressions worn by a well-patron's knees or elbows during fierce prayer (depressions into which pilgrims align their own corresponding body parts). Immediately adjacent to wells, or positioned at a stone cairn or other station a short distance away, might also be smaller sacred stones of unusual shape (some would seem to be former stone weights) that may be passed around the body or touched to an afflicted area in curing traditions.

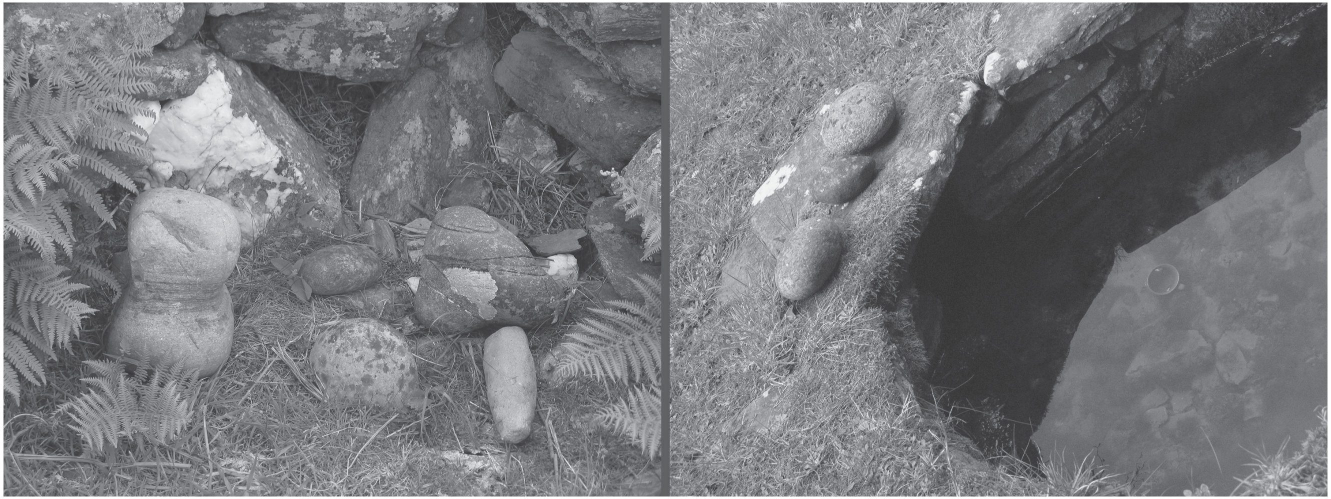

Figure 15.4 Healing Stones, (L): Well of the Holy Women, Teelin, Co. Donegal; (R): St Odhran's well, Lattragh, Co. Tipperary (author).

Such lithic ritual gear has gone missing from wells across the country in the last five decades.

While some wells retain up to 16 stations, rounds at many now may engage just a few including relatively more transitory trees. Many wells have lost their stations along with their landscape settings to agricultural use, housing, and other development. At some sites, local priests displaced traditional stations with the "stations of the cross" in the nineteenth and twentieth centuries. Today, practitioners might perform abridged rounds or dedicate hours to the full set as currently known. If anything is consistent about well rounds, it is likely their renegotiation through time. In recent generations however, the landscape contexts of sites are being lost from local understandings of well traditions. This is in part because a walking way of life is gone and people no longer navigate their surroundings by foot on a daily basis as they did sixty years ago, in part because with the real estate revolution in Ireland since the mid-1990s, land has been divided, sold to "blow-in's," and cleared for new uses, and in part because of the global decline in "traditional," local practices that is accelerated by the current ascendancy of social media.[7] Among the most recurring comments in on-site ethnographic interviews (in every county in the Republic between 2007 and 2017) was one most worrying for our future understanding of holy well sites: that interviewees had forgotten stations about which their grandparents had instructed them. Interviewees could no longer find or recall where stations were located (often because of land use and ownership change) or what part the station(s) played in the rounds, but at sites in every county I was assured "there used to be more." Some can be found in local history publications since the nineteenth-century and traveler accounts from the sixteenth century onwards, while hints at others might be recovered from medieval hagiographies. For example, based on an earlier Life, a fifteenth-century account of native saint, Finnian, advocates repeating the Our Father at a flagstone beside his well in what is now Achonry, County Sligo (Hughes, 1987:355–362). With his work at Struell in County Down in Ulster, Finbar McCormick has offered a model for archaeological research of holy wells that integrates a thorough consideration of historical sources (2009, 2017).

One of Crumley's early contributions was to value text-aided archaeology and the mining of available literature from any period related to a site and its landscape context (1974; see also Hedeager, 2011; Andrén, 2014; Waddell, 2014). Wells feature regularly in northwest Europe's oldest corpus of indigenous literature—that from Ireland (dating from AD 600 to 900) which includes law tracts, genealogies, myths, sagas, the monastic annals, and hagiographies. In his Life of St Patrick, the seventh-century Tírechán provides a story of two Christian converts in the province of Connaught (Ethne and Fedelm, daughters of the local king Loíguire) being baptized in a spring-well called Clebach and also buried beside it in a pagan style *ferta* (with a round ditch and mound).[8] Even if the wellside burial was an invented literary device centuries after the purported event, it receives no explanation for a readership expected to understand such a practice and the subsequent location of a church nearby. In the metrical and prose texts known as *Dindsenchas* (the place lore of Ireland), *ferta* is a place name element specifically for a burial site thought to mark territorial boundaries. Elizabeth O'Brien argues that *ferta* physically staked ancestral claims to land and authority from the Late Iron Age through the early Christian period in Ireland (O'Brien and Bhreathnach, 2011, 2013). Associations between such monuments and holy wells could illuminate transitions in local and regional powers and identities.[9]

Many of Ireland's early medieval ecclesiastical sites were intentionally placed on or near pre-Christian sacred sites, most commonly spring wells for a source of both daily and baptismal water (Read, 2010:64; Harbison, 1991:229). On-site burials of founder-saints also gave their successors authority over an area and potential contact with the saints' primary relics (their buried bodies) further sanctified the water. Such practices are found elsewhere, particularly when cathedrals were founded over or beside a holy well. Norway's Nidaros Cathedral at Trondheim was erected over a spring beside St Olaf's burial. The waters (still accessible within the Cathedral) were deemed more curative *because* they came from Olaf's grave. At Tisvilde in Denmark, pilgrims slept on St Helene's "grave" before drawing water from her adjacent holy well (Stjernquist, 1997:85). Many holy wells with the oldest dedications to indigenous Irish saints, such as the primary wells of two sixth-century saints, Ité's in Killeedy, Co. Limerick and Ailbhe's at Emly, Co. Tipperary, are now in the middle of cemeteries. Late medieval saints' Lives (hagiographies) indicate the practice of performing rounds in ritual prayer at early Christian cemeteries (O'Sullivan and Ó Carragáin, 2008:328; Gillespie, 2004:149) and these cemeteries often grew up, as did ecclesiastical structures, around wells.

Connected sacred landscapes

Holy wells (encompassing different types of sacred watery sites) can be linked by saint cults and by regional and localized pilgrimage traditions, which in a few cases might seem to cross the Iron Age to Christian divide. Ireland's most sacred mountain, Croagh Patrick in County Mayo, has both a sacred pond and lake. Christian Corlett sees it as the focus of an extensive, prehistoric ritual landscape (1998). Connected by trackway to the capital of the ancient province of Connaught (Rathcroghan), it was associated with the generic pagan deity Crom Dubh and the Iron Age festival of Lughnasadh (August 1). The first 32 kilometers of that trackway (reinforced with stone in the 1100s) is today a pilgrimage route called St Patrick's causeway that links eight holy wells and two holy pools between the mountain and St Patrick's well at Ballintubber Abbey. Analysis of such pathways could provide a fuller picture of how wells were linked in wider Irish sacred topographies even when wells themselves can be archaeologically-resistant sites.

Historic rounding folk-liturgies are responsive to the unique landscape setting of each individual well, and to changes in those landscapes, but many were also linked to each other. With the exception of national devotion to indigenous saints Brigid and Colmcille, the cults of native saints are still to a degree traceable through surviving holy well dedications and have mostly local or regional distributions (Ray, 2011). Dedications can inform us about monastery and church endowment and patronage, particularly as founder saints were often related to local elites.[10] Holy wells, then, have much to tell us about the Iron Age to Christian transition at multiple scales.

Indigenous "Saints in the Irish Tradition" were far too dubious to be officially canonized and were considered protectors of the areas that embraced their cults; their holy well dedications demonstrate connections between places otherwise lost to us. Writing when the route between the sites could still be traced, Máire MacNeill pointed out a seasonal pattern for visiting wells of three "sister" saints across northwest Co. Cork: that of St Gobnait at the beginning of spring, that of St Croabh Dearg (meaning in local accounts "St Red Claw") at the onset of summer, and St Latiaran's near Lughnasadh marking the start of autumn (1962:268–273). Other wells of sibling saints and of their saintly, if remarkably fecund, mothers are visited in conjunction and rounds may include a prayer facing the direction of one while at another (so that the distant well serves as a station). Formerly, petitioners at the well of St Elva/Eilibh (beside her "grave") at Ballinashee by Geevagh, Co. Sligo acknowledged the well of her sister St Lassair in Co. Roscommon with a bow to the southeast. Whatever the true origins of these saints, and whether or not they were related, their well liturgies mean the places were connected. The supposed kinship of the saints perhaps preserves links between tuaths (petty kingdoms), regionally sacred places, and early ecclesiastical foundations. On the Iveragh Peninsula in Co. Kerry, an arduous 22-kilometer trek between four saints' wells was undertaken once a year into the 1960s. Perhaps such annual ritual walks originated with wells serving as territorial markers and approximated "beating the bounds," or the "common ridings" of Scotland. While many of these pilgrimages are barely in living memory, we can ethnohistorically retrieve interconnectivities of these sacred landscapes through the folklore of the medieval hagiographies, Protestant ministers' written criticisms of pilgrimage, the Letters of nineteenth-century Ordnance Survey workers, and national folklore surveys conducted in the 1930s.

Both the expansion of the holy well "package" we expect from historic periods (presiding saint, stations, votives, rounding rituals) and the disuse and loss of wells over time (traceable since the nineteenth century) connect to social, political, religious, and economic changes. The fact that holy wells endure at all illustrates heterarchy at work. The basic paradigm of water's sacrality was renegotiated through time for social fit or in resistance to changes in secular and religious powers. Hagiographical texts posit wells' conversion with that of the local populace and elites by missionizing saints, and the association of local dynasties with the saints founding churches and religious houses in their territories (saints to whom wells were dedicated). Some wells were rededicated to universal saints with the Anglo-Norman invasion (purposed by the only English pope, Adrian IV, to bring Irish churches into conformity with Rome). As in England, Scotland and Scandinavia, well veneration in Ireland would have undergone changes or disruption with the Protestant Reformation's repression of public Catholicism and folk liturgies. Counter-Reformation reforms by Roman Catholics also attempted to displace popular practices and refocus veneration on universal rather than indigenous saints. Penal legislation (designed to disenfranchize those not conforming to the established, Anglican "Church of Ireland") particularly targeted Irish holy well pilgrimages in the early eighteenth-century. Following Catholic Emancipation in Ireland (1829), re-empowered clergy actively suppressed holy well pattern days and folk belief. Yet through these eras, new wells were locally "discovered" and dedicated through popular practices (Ray, 2011). Despite reworking and suppression by varied authorities through the centuries, holy well devotion remained so prevalent as to become the subject of the Irish Free State's first national folklore survey in 1934.[11] As Salmi, et al. have argued for Sámi offering places (noted above), sites of ritual practice can demonstrate mediation of multiscalar social changes. While mass attendance has dropped by over a half in the last two decades and Ireland has entered a "Post-Catholic" era (Ganiel, 2016), holy well renovations and gatherings continue as people seek non-institutional "Irish" ways of embracing faith. At the most popular wells, votive deposits must be cleared monthly, so that while many wells now exist only as archaeological sites, others are still in use or *re*-creation.

Archaeology of sacred waters

With a few transcending exceptions (Scarborough, 1998, 2003; Lucero, 2002; Oestigaard, 2006), archaeology has had a slow return to water after anthropology's mid-twentieth-century fixation on its role in state formation and social complexity. Grahame Clark identified the key role of water management in human history in a 1944 *Antiquity* article, and Cultural Ecologist Julian Steward argued that irrigation was the catalyst for state formation in a 1955 volume (not surprisingly entitled *Irrigation Civilization*); both preceded Karl Wittfogel's *The Hydraulic Civilizations* (1956). Yet, it was to Wittfogel and nested hierarchies that "The Archaeology of Water" issue of *World Archaeology* still responded (Madella, Osborne and Shaw, 2009). Perhaps more helpful in examining the role of water in forming socio-political structures and complexity are the heterarchical relations shaping both quotidian subsistence and less frequent water rituals. Like a warp on a loom, hierarchy is obvious and stationary, but drawing the weft through, over and under the warp is what weaves threads into fabric. Alongside and in spite of hierarchical ideologies, laws and social norms, the daily life of power is heterarchical. Management of the most basic resource that must be managed, and the designation of some sources as sacred, has and still does hang on power flows in multiple directions, and contestation and public engagement at multiple scales.

Although long-lived and attracting attention in different periods and successive cultures, sacred watery sites can go dry or transform into quite different landscapes over time, and can also indicate how people responded to change in their environments. In describing "how humans historicize water and how water historicizes them," Kenneth Sassaman has explored ancient Floridians' experience of sea-level rise at rates predicted for our near-term future. The first Paleoindian-era settlers had to rely on deep sinkholes for water needs, but Sassaman argues that as surface water became prevalent in a variety of emergent wetlands, early and mid-Holocene Floridians responded to shifting water levels and relocation with innovative changes in their ritual practice that mediated changing relationships between their belief systems and the physical circumstances that informed such beliefs. "Uniting ritual across a variety of transformations was a historical ontology that privileged water as both the source of life and a medium of renewal" (2013:178–179). Awareness of long-term change in sacred water sources relates to the speed of cultural and technological change of course, so that even gradual differences in watery sites in relation to place lore born of long-peripateticism was significant for migratory and semi-sedentary communities. Depositional evidence of watery site sacrality can be long-lived; changes in its form are a too-often overlooked indicator of larger social and environmental changes (Fontijn, 2002, 2008; Beck et al., 2007; Derks and Roymans, 2009). In complex societies, awareness of sacred watery sites varies with quite different temporal scales. Evoking the *Annaliste* short-term event, John Cherry suggests that the drying of a Hittite sacred spring "virtually overnight as the result of (say) a local earthquake" would have terrified "those engaged with such a place," but that "humans have a hard time dealing with slow change that cannot be seen directly, which is one reason why the lessons of archaeology are so important" (2014:209–210).

It is also true that the lessons of folk practice, categorization and landscape lore have much to offer archaeologists on underconsidered topics such as sacred water site types. As Denis Byrne has written, it is not always the public that needs education from scholars, heritage practitioners and planners, but the latter that needs to be educated on the local popular religious beliefs and practices that shape people's engagement with the material past (2014). In the last decade, anthropologists have considered water's role in human society and the significance of water inequities (Strang, 2004, 2009; Orlove and Caton, 2010; Wagner, 2013; Hastrup and Hastrup, 2015). Water sources are perhaps both the oldest sacred sites and the oldest conservation areas, and transdisciplinary efforts are now linking traditional ecological knowledge and sites of natural sacrality with solutions for water crises (Bryan, 2017; Groenfeldt, 2013; Jackson, 2018). Their work points to the need for greater understanding of the religious significance of water and what motivates people to steward water sources in ways that enable socio-ecological resilience.

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Notes

1 In contrast to liturgy (the officially prescribed form of public religious worship) folk liturgical practices are those accepted as efficacious through generations of repetition rather than by sanction from religious authorities (Ray, 2015).

2 The herb contains allantoin, which accelerates the body's natural cell replacement and seems to help skin conditions and bone mending (Munnelly, 2005:167).

3 *Slán* serves as the Irish prototype for stories of saints converting pagan sites to Christian use. Tírechán's account is one of two late-seventh-century hagiographical works on Patrick and describes the saint baptizing and founding churches as he traveled from well to well. Having descended the pilgrimage mountain Cruachán Aigli (now known as Croagh Patrick), he reached the well of Findmag called *Slán* where "the druids" offered the well gifts "as to a god." Tírechán describes it as a spring with a square-shaped modification and a quarter stone covering its mouth which Zwicker translates as a "fourcornered" well with a fourcornered stone above it (Zwicker, 1934:145; Aitchison, 1996; Ray, 2014:79–81). Patrick permanently moves the stone feature and rededicates the water to Christian use.

4 Believed to contain petitioners' intentions, some votives are buried, others are burnt or set out for trash collection according to variable local practices.

5 Some volumes consider only portions of counties and wells are absent from those on Meath, Monaghan and Louth, are only referenced *passim* for Waterford and Wexford, and appear inconsistently within chapters on medieval ritual sites in the volumes for County Kerry and West Cork.

6 See Ray, 2014:80, 84, 121, n87. Associated with a water source, burnt mounds/fulacht fiadh are horseshoe-shaped mounds of heat-shattered stones arguably employed as cooking sites or as saunas. Standing stones edged with Ireland's earliest-known form of writing from perhaps the fourth–sixth centuries, ogham stones are readily relocated, but as they were used at territorial boundaries and as springs were considered markers of the same, associations are worth pursuing.

7 However, Irish newspaper archives are also replete with early-twentieth-century editorials lamenting the loss of holy wells.

8 While Clebach's location is likely unknowable (Waddell, Fenwick and Barton, 2009:30), residents of Tulsk, Co. Roscommon claim it is their St Patrick's well (the Ogulla Shrine).

9 For an example of a Co. Limerick wellside grave whose pagan resident became a saint when the well was visited for Christian purposes, see Harbison, 1991:229.

10 Land was owned by the extended family within four generations (*derbfhine*); that given for a church was inherited by donor family members and then by their "heirs" and successors in their ecclesiastical roles (Hughes, 1966:75–77).

11 Available in four bound volumes at the National Folklore Collection, University College Dublin.

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Afterword

Integrating time and space in dynamic systems

Carole L. Crumley

In 1968, when I was in graduate school, my fellow students and I found ourselves dividing time and attention between our dissertations and street demonstrations held to address a variety of urgent issues. Among them were the Vietnam War, the existential threat of the draft and crimes against humanity by the army and police; widespread environmental degradation and heightened toxicity; and dereliction in governmental protections, prominently but not solely the attack on the civil rights of black, female, indigenous and gay people.

My dissertation would examine fortified settlements built twenty-five hundred years ago in Iron Age France. The dissonance between these two worlds was almost unbearable: one, a solitary, curiosity-driven investigation of Celtic societies; the other, a chaotic present in which everything seemed broken, except for love along the barricades. As a sort of self-consolation, I vowed to make archaeology relevant.

Today, a half century later, the efforts of many have made archaeology more integrated with allied fields of study and with contemporary issues (e.g., heritage, sustainability). There are renewed ties to the social sciences (especially anthropology) and the humanities (history, philosophy) and there is now interest from ecologists in modeling and scenario building. Efforts to replace worn theories, to integrate information from many sources and to make use of remarkable new technologies have been successful. These developments have not only reinvigorated the practice of archaeology, but also given it new and exciting goals.

When Christopher Hawkes wrote "One day, the conjunction of all our [cultural and historical] resources together with natural-scientific chronology may enable us to transcend the limitations under which we now labor…" (1954:166) he may or may not have been able to imagine what comes *after* integrated and plural narratives of the past are assembled: to render them useful for the future. He was, after all, urging archaeologists to embrace anthropology and holism by adopting what Walter Taylor had called the "conjunctive" approach (Taylor, 1948), but to what end?

Hawkes examined the effort it would take to move from archaeological analysis to the human activity that produced them. Summarizing his discussion (1954:161ff., italics mine), he writes:

1. To infer… from… archaeological phenomena to the *techniques* producing them I take to be relatively easy…
2. To infer… the *subsistence-economics* of… human groups… is fairly easy…
3. To infer… the *social/political institutions* of the groups… is considerably harder…
4. To infer… the *religious institutions and spiritual life*… is the hardest inference of all.

Although there is still some distance to go, current archaeological inference has now advanced to Hawkes' third point, and even his fourth (e.g., Crumley, 2017a; Lucero, 2018; in this volume, Murray and Arnold; Ray). The present volume serves as evidence for what can now be achieved. There is enough information about the integrated history of many places in the world to treat them as laboratories for future sustainable practice. Using the tools we have and those that will come, we can begin to ask careful questions with some certainty that we can get things mostly right.

One question we are ready to tackle is how previous societies handled risk and vulnerability. We may not be able to resuscitate everything that affected decision-making and management, but we have enough information to begin some broad comparative projects. For example, bimodal rural/urban landscapes are only one of the myriad forms that allow people to aggregate into groups; the analysis of other forms and their contexts (e.g., environmental, social) can offer ideas in novel future conditions.

More generally, the conceptual and practical tools that archaeologists now have can contribute to the future management of natural resources, simultaneously strengthen biological and cultural heritage, offer new perspectives on aesthetic and spiritual values, conserve archives of biological and social information and find fertile ground in combining past ideas and present (and future) technology (Crumley et al., 2018).

Today, as the impacts of climatic change, environmental degradation and global conflicts increase, once again archaeologists must raise their heads from the trenches and ask what role humanity's past has in its future. This book's conceptual focus is how two ideas, Historical Ecology and heterarchy, can complement one another to reveal new perspectives in creating a sustainable human future. It is useful to examine how these concepts are linked with one another.

Historical Ecology, an idea waiting to happen by the early 1990s, surfaced independently in archaeology, forest management and ethnoecology. Historical Ecology is a cluster of concepts in a practical framework for studying the past and future of the human-environment relationship. Concepts are flexible ideas, both in the breadth of their applicability and in the fact that they can be modified for specific conditions. As an integrated framework for studying change over time in the field of anthropological archaeology, Historical Ecology draws on a holistic perspective and enables a "trans-temporal turn" in landscape research. A set of operational principles guides research design (Balée, 2006; Crumley et al., 2017; Meyer and Crumley, 2011).

Investigations within the Annaliste tradition offered early examples of a place-through-time trend. In discussing Fernand Braudel's long-term history of the Mediterranean region (1923–1966), Vilar (1973:93) asks how historians [and archaeologists] should position themselves: to think geography historically or history geographically? In other words, to see what happened over the long term in a particular geographical space or to pursue different regions and cultures as their relations shift across space? Bill Marquardt and I thought it was time to further examine the former; perhaps there was something else to see by employing a cross-scale temporal approach (Kahn and Llobera, 1986(1981):320ff.).

Indeed there is. The holistic pursuit of specific landscapes and regions over time offers a narrative of management at several scales and in a variety of social, economic and political contexts. The framework of Historical Ecology can follow landscape change at scales that access the results of innovation, mitigation, migration, conflict and more (in this volume, McGovern et al.; Ekblom et al.; Murray et al.; Rodning and Mehta; González-Álvarez; Johannesson). The influence of anthropologist Franz Boas in North American archaeology may be found in the contemporary inclusion of community involvement and ethical practice, along with today's quality and legal standards. Like anthropology, Historical Ecology enables the study of change over time.

Historical Ecology's focus on landscapes and regions highlights the importance of human scales that can make a critical connection to the global scale. Landscapes open discourse among researchers and are the subject of lively conversations in communities of practice. One reason is that landscapes hold onto heritage: in the ground, in documents and in memory, specific places are rich in information from many times in their history (in this volume, Lock and Ralston). Through conditions and activities that characterize a particular place, landscapes and regions contribute to cumulative global-scale atmospheric and biogeophysical conditions. Landscapes are living and they change every day; so must we humans, who form and have been formed by them.

Historical Ecology is a multi-tool in a toolbox of concepts for studying the history of landscapes: every place, landscape or region has a unique history and particular resources that can tell its dynamic story. While flexible and robust, Historical Ecology is not the only resource needed to search the past for the benefit of the future.

Heterarchy

With scholarly roots in the study of the human mind (McCulloch, 1945), the concept of heterarchy has contributed to the study of artificial intelligence, social organization, management, education and politics (Crumley, 2005). It is surprising to see at how many scales (temporal, spatial) and philosophical and political dimensions (e.g., values, just governance) in which the idea is useful (in this volume, Levy; Sastre and Currás; Fernández-Götz and Liceras-Garrido).

If we begin with the premise that the tension between competition and cooperation exists in all human societies, it behooves us to explore the ways rules and norms permit or deny each and how both interact with history and changing conditions to forge institutions (Chapman, 2003). From this more neutral perspective, sources of power are counterpoised and linked to values, which are fluid and respond to changing situations. This definition of heterarchy and its application to social systems is congruent with how the brain works: it is not organized hierarchically, but adjusts to the re-ranking of values as circumstances change (McCulloch, 1989).

One of the most important conditions for reducing conflict is to ensure inclusive and equitable conditions for everyone, particularly as regards food and water security, personal and group safety and a satisfying quality of life. These needs begin with intimate and local conditions, but soon reach to the region and beyond. Heterarchy is often employed as a corrective to inequality and especially the concentration of wealth. The long history of this aspect of heterarchy can be summed up as communitarian.

Communitarian societies in the archaeological and ethnographic record have long been the focus in the study of past and present societies. Archaeology's antiquarian beginnings first showcased the brilliance of great civilizations but, as the discipline was transformed beyond an elite pastime, the lives of ordinary people came to light. Today many archaeologists have made their careers in thinking about the lives of people who lived in smaller groups with more collaborative tendencies. Today we see grand societies in a broader context, including the earliest and contemporary communities that were and are—at the very least—ambivalent about urban neighbors (Scott, 2009, 2017).

As Anderson (1983) and Scott (1985, 1998) demonstrate in their analyses of the progress- and simplification-driven goals of the state, governing elites devalue local knowledge and undermine individuals' capacities for self-governance. This hyper-hierarchical, social engineering perspective values regularity as a precondition of efficiency; nonetheless, the population can make its resistance felt through increased networking, collective representation through institutions (guilds, labor unions) and sabotage.

Today, as inherently unstable forms of wealth distribution and political power proliferate, the stabilizing capacity of self-organized forms is often ignored. Archaeologists are working to expand the examination of sociopolitical organization and to question the long-term durability of power pyramids as contrasted with flatter power landscapes. Paleo politics are not impossible of access: for example, in the workings of parallel economies and in intra-urban relations (Stein, 2001; Yoffee, 2015).

As resources worldwide are depleted, environmental conditions deteriorate and new threats to democratic principles increase, new ways to stabilize societies and reduce conflict must be found. The heterarchy–hierarchy relation is a fundamental principle of human social organization (Crumley, 2007) and can carry social and political analysis across time and into the future (in this volume, Marquardt; Thurston; Murray and Arnold; Feinman and Nicholas).

New views on the commons

Garrett Hardin, following statist economic theories, famously asserted that individual self-interest undermines communal action. Hardin's article in *Science* (1968) stimulated controversy and considerable research; now there is abundant evidence that, throughout human history and to the present day, communities have found ways to organize their collective and individual tasks without central authority (Angelbeck and Grier, 2012; Blanton and Fargher, 2016; Crumley, 2005, 2017a; Kohring and Wynne-Jones, 2007; Lindholm et al., 2013; Netting, 1981, 1993; Ostrom, 1990; Souvatzi, 2008; Thompson et al., 2018).

It is also becoming clear that annual and more persistent crises (e.g., drought, poverty, war) have profound effects on human organization. Upper Paleolithic peoples seasonally altered modes of political organization (Wengrow and Graeber, 2015); late Classic Maya urban centers were abandoned for self-sustaining villages in a long period of crisis (Chase and Scarborough, 2014). Pastoralists become urban workers during droughts (Barth, 1962). Specific economies are basins of attraction and opportunity, not a sorting mechanism of Progress.

Such equitable forms of governance go by many names: collective, communitarian, anarchist and many others. Of recent interest are communities that successfully manage common-pool (jointly held) resources. Nobel laureate Eleanor Ostrom and other scholars identified "design principles" of stable common-pool resource management that include local knowledge, effective communication, clear rules, monitoring, sanctions, paths for conflict resolution, internal trust and recognition of self-determination by higher-level authorities (Ostrom, 1990). These are principles that apply equally to anarchist squats, agricultural collectives, community-owned gardens and employee-owned corporations.

As Ostrom did, after combing through ethnographic accounts, our next steps are to extract this knowledge from the archaeological, historical and contemporary record and to learn how to grow and integrate such enterprises and organizations into frameworks that include both ranked and nested structures along with those that are flatter and networked and forms that are yet to be recognized. Archaeological, ethnographic and documentary evidence demonstrates great organizational diversity in powerful societies; in North America alone, indigenous Cherokee, Coast Salish and Iroquois polities utilized careful checks and balances that resulted in "inverted pear" (Suttles, 1958) and other organizational forms in which more individuals, groups and communities could benefit.

Hierarchies and heterarchies of power coexist in all human societies. Societies in which heterarchical values and institutions are dominant are richly networked structures where multiple scales and dimensions are in communication with one another, a condition De Landa (2000) calls a "meshwork." The power of various factions and individuals fluctuates relative to conditions; most important are the character and the degree of systemic communication.

In anthropology and archaeology, a general-purpose definition of heterarchy that suits a variety of contexts is the relation of elements to one another when they are unranked, or when they possess the potential for being ranked in a number of different ways, depending on systemic requirements (Crumley, 1979:144). This definition offers an *arena* for examining diversity and change in systems, or organizations, or structures. In general, heterarchical relationships are sources of difference and dynamism.

Societal dilemmas in which values are in conflict are resolved by achieving a novel, transcendent condition in which competing values are re-ranked at particular scales of time and space. At all levels of integration, new ordering principles come into play. Thus, conflict or inutility leads to suspension of old forms but ensures the preservation of useful elements to provide creative new solutions to challenges, the transcendence of older forms. It is in these novel forms that societies retain near-term flexibility; although there is, of course, no long-term guarantee that the new form is more stable than the old or that tensions will not reappear in another guise.

To re-envision an equitable future for humankind, there must be tools to conceptualize and evaluate shifts and trade-offs between exclusive and inclusive power and to assess their implications for society and their suitability for the future. Here broad theory deserts us: such work must be done in specific places and conditions and it will ground us.

Human societies as Complex Adaptive Systems (CAS)

In order to understand change in the past, the traditional approach has been to establish a temporally ordered chain of events, termed *causation*, which allows generalization about the system. But because complex systems, like human societies, are comprised of properties that can change at various temporal and spatial scales and can interact in unanticipated ways, a simple temporal ordering of events cannot describe “causal” interactions among variables.

While in complex adaptive systems a clear line of temporal causation is compromised, it is possible to analyse profound change in the nature of the system by identifying the variables that concatenate to bring about the change. This requires a meta-theoretical approach that takes into account the properties of dynamic systems such as human societies (Sinclair et al., 2018).

Variables that change quickly are only one genre of rapid, not-so-rapid and slow variables within these systems. For example, a plant disease causes system collapse only after agricultural lands have been slowly depleted of nutrients *and* after local populations have recently decided to specialize in a limited number of plant crops. Archaeologists—with our close attention to scales of time and space and access to supporting environmental and cultural data—are perfectly poised to study not only rapid variables, but also slower and less-easily identified variables that operate during periods of seeming system stability. Historical Ecology enables archaeologists to study periods of both apparent stability and of rapid change.

Complex systems have no overarching hierarchy of dominant/determining “stimulators” and subordinate “responders.” Rather, they are *heterarchies* of interacting elements that may sometimes stimulate and at other times respond and that may sometimes dominate the system and at other times may be dominated. I argue that the holistic character of dynamic systems such as humans-on-Earth can be studied using Historical Ecology.

Historical Ecology extends the concept of heterarchy not only to the material being studied, but also to the manner of that study. As a transdisciplinary endeavor, Historical Ecologists recognize the contribution of a heterarchy of knowledge, both within and outside of academia and especially with individuals and communities. Correlation of researchers’ contributions and integration of their data pose a large but navigable challenge for Historical Ecologists (Crumley 2012a; Jones et al., 2018), but also account for the richness of the results. Taking human societies as complex dynamic systems and employing the dynamic concepts of Historical Ecology and heterarchy, researchers can evaluate risk and vulnerability over the long and short term with regard to governance, social organization and resource management.

* * *

In 2009 my partner and I moved to Sweden, ostensibly for my two-year sabbatical, but we quickly fell in love with Swedish life and decided to stay. I found wonderful colleagues in European university departments and centres that teach and practice Historical Ecology. My long-standing association with global-scale environmental and social programs became easier to pursue as many are based in Europe, which is also my principal region of scholarly interest.

I became executive director of a research community's project, *Integrated History and Future of People on Earth*. IHOPE's research design employs Historical Ecology, the environmental humanities and future studies (modelling, scenarios). Our website (www.ihopenet.org) features projects from all over the world that use Historical Ecology and support diversity (Costanza et al., 2012; Van der Leeuw et al., 2011).

It has also been possible to use Historical Ecology and heterarchy in several other areas. With colleagues we have published on global environmental and social change (Crumley, 2012b, 2013, 2015; Pálsson et al., 2013; Seitzinger et al., 2012; Steffen et al., 2011), biocultural diversity and refugia (Barthel et al., 2013a, 2013b) and on the future of European landscapes, in connection with the European Research Council HERCULES project (Crumley, 2012a, 2017b; Crumley et al., 2017; Plieninger et al., 2015). With Canadian and European colleagues and led by doctoral students, we published on Historical Ecology in PLoS1 (Armstrong et al., 2017) and with Swedish, Romanian and American colleagues we published the book *Issues and Concepts in Historical Ecology* (Crumley, Lennartsson and Westin, 2018).

We have deepened collaboration with ecologists and agricultural historians and uncovered considerable common ground in conservation ecology and environmental management. With archaeologists, environmental scientists and resource managers, we have examined landscape futures. These are only some of the collaborations going on everywhere, testimony to the utility of the ideas this book's authors have explored. We must hope that their adoption in both scholarship and practice will give our planet and its peoples some of the resources they will need for the future.

We have been given two powerful tools from another era—Historical Ecology (Deevey, 1964) and heterarchy (McCulloch, 1945). I humbly thank the organizers and contributors to this book: for their many kindnesses to me, and for their enduring commitment to the work we do, together with others, to envision a liveable future.

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